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REPORT NO. 76
HISTORICAL SECTION(G.S.)
ARMY HEADQUARTERS

1 Feb 58

THE EQUIPMENT OF CANADA'S ARMED FORCES
DURING THE SECOND WORLD WAR: PROBLEMS
IN PROCUREMENT AND ASSIGNMENT

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The Equipment of Canada's Armed Forces
During the Second World War: Problems
In Procurement and Assignment

1. A really complete study of the equipment of Canada's Armed Forces during the Second World War is not possible from the documentary material now available and the present Report merely treats a number of the problems in a general fashion. It does, however, place greater emphasis on certain of those encountered by the Canadian Army. Unlike the United Kingdom and the United States, Canada contracted for its munitions through a single agency, thereby eliminating open competition between government departments for the products of industry. Despite the diversity of Canadian production, however, it was always necessary to obtain many items from the United Kingdom and the United States,* a phase of the story that has not been covered by J. de N. Kennedy in his two-volume History of The Department of Munitions and Supply (Ottawa, 1950). Then again, there was the all important question of assigning available munitions to the ultimate "user", a basically military function that more and more came to depend on the current strategical situation.

2. Above all, it must be borne in mind that the Government of Canada was accorded no share of any importance in the higher direction of the Second World War. Although it did not like this situation, there was nothing to be done in practice beyond voicing certain very mild protests which

*British Commonwealth supplies of munitions from all sources during the period of the Second World War have been computed on a percentage basis as follows:

	1939- 1940	1941	1942	1943	1944	1945	Total
United Kingdom	90.7	81.8	72.6	62.4	61.2	66.1	69.5
Canada	2.6	5.2	8.6	8.8	8.9	10.0	7.9
Eastern Group	1.1	1.5	1.9	1.9	1.2	1.7	1.6
Purchases in U.S.A.	5.6	9.1	4.7	2.4	1.5	1.2	3.7
U.S. Lend-Lease	-	2.4	12.2	24.5	27.2	21.0	17.3

The production of munitions in the Eastern Group was mainly concentrated in Australia, New Zealand, South Africa and India (1).

were accompanied by assurances that Canada had no desire to upset the existing arrangements. This, despite the fact that, alone of the North American nations, she had gone to war in 1939 and faced the task of quickly expanding her tiny naval, military and air forces, which were trained and equipped on the British model but at the expense of the Canadian taxpayer.

3. Initially, of course, military supplies were scarce in all democratic countries. Within a relatively short time, however, many items, such as boots and uniforms, became relatively abundant and the planners could limit their worries to the procurement of complicated technical equipment and stores made from raw materials which themselves were becoming scarce.

4. Since the term controlled stores will appear frequently in this report, chiefly as applied to military items, it would be well to define it, employing a definition issued by the War Office in 1943:

Stores the production of which in the quantities required by the Army presents difficulties, allocation being controlled by the War Office:

- (a) All ammunition and explosives.
- (b) Small arms and mortars.
- (c) Most artillery equipments.
- (d) Range-finders, telescopes, directors, etc.
- (e) Engineer bridging equipment.
- (f) Compasses, surveying instruments, stereoscopes, etc.
- (g) Wireless sets and most other signal equipment (2).

The issue of such controlled stores was a General Staff responsibility, since one of the key factors governing allocation was the question of whether troops were, or were likely to be, in contact with the enemy.

5. The American attitude was to be somewhat different, however: as a result of the shortages that became acute after Pearl Harbor all items of finished military stores became subject to allocation by the Munitions Assignments Board in Washington and certain maintenance spares were included in such pooling arrangements, in contrast to the British view that these must necessarily be provided on an agreed scale to maintain the original equipments.

6. What will be meant by the terms procurement and assignment also should be set forth clearly:

Procurement is the action which is necessary to establish availability and is therefore co-related with the setting up and scheduling of productive capacity and the furnishing of raw materials. Procurement, in the first instance, must be worked out on a long range planning basis in order that the productive capacity of ... factories may be harnessed to the best advantage to fill the requirements of the ... armed forces, and in order that available raw materials may be allocated and distributed to meet manufacturing schedules.

Assignment is the procedure under which finished military stores are proportioned, on an operational priority basis, to the claimant nations.... Since assignment is essentially based primarily on operational and strategical considerations, it follows that even though finished military stores have been produced due to the procurement action of a certain country, they may actually be assigned... to another country if a superior operational need can be established. In such cases, the country to which the stores are assigned is usually requested to immediately take procurement action to re-establish availability so that the other claim may later be reimbursed (3).

7. The expansion of the Royal Canadian Navy was relatively orderly and at all times its requirements bore a definite relationship to the number of ships in commission or building. What almost might be termed duplicate orders for vessels and naval stores were provided Canadian industry as a result of contracts placed for the British Government. According to the terms of the British Commonwealth Air Training Plan, which was administered by Canada, the Air Ministry assumed responsibility for equipping and maintaining all R.C.A.F. personnel after they proceeded overseas, for service both in R.A.F. squadrons and the so-called Article 15 Squadrons (although after 1 Apr 43 the Canadian Government footed the financial bill for such R.C.A.F. units and personnel). In addition to providing for certain training and home defence requirements, the Canadian aircraft industry was able to produce, under contract, certain types of aircraft and spares for the British Government and U.S. Navy. On the other hand, eventually Canada produced greater quantities of certain military stores and equipment, including such items common to the Navy and Air Force as motor vehicles, small arms and ammunition, than were required for her own needs and the surplus was made available to others of the United Nations.

8. From the production standpoint it must not be forgotten that Canada, alone among the members of the British Commonwealth, used dollar currency and was developing, slowly but surely by 1939, the mass production-industrial techniques of her great neighbour to the south. Such was her dependence on the American economy, however, that Canadian production could not get very far without importing machinery, spare parts and sub-assemblies or components. This dependence increased following the outbreak of war, as the Canadian economy further concentrated on manufacturing munitions for the United Kingdom. Canada began to import more capital

equipment, raw materials and components from the United States to meet these orders but no longer found it possible to offset, by the conversion of sterling sales in the United Kingdom into American currency, the natural dollar deficit created by the traditional North Atlantic triangular trade.

9. To assist the reader in finding his way through a rather long and complicated narrative, and to facilitate the use of the report for quick reference, the following brief summary of it has been prepared. The references in brackets are to the relevant paragraphs of the report. A.H.Q. Report No. 48 ("Canada and the Higher Direction of the Second World War") will be found useful in connection with the present report.

SUMMARY OF THE REPORT

(i) Initial Problems

10. In 1939 Canada possessed no munitions industry to speak of and the source of supply for its Armed Forces was still the United Kingdom. As events were soon to demonstrate, such was her dependence on the American economy for capital equipment, raw materials and components that conversion of existing factories to munitions production and the provision of new war plants was to be a slow business. Apart from the possible danger to British industry of establishing post-war competitors in Canada, there seemed little point in the United Kingdom encouraging the creation of a long term production programme from scratch for an estimated conflict of only three years duration. Except for ammunition, explosives and particularly aircraft, there was a widespread feeling that British industry could provide the munitions required by the armed forces of the whole Commonwealth; therefore, North America was considered a marginal source, for making good any production lost by the enemy bombing of British factories. Moreover, the British Government wished to limit its expenditure of dollars (see paras 25-30 and 32-35).

11. Following hard upon its decision to declare war upon Germany, the Canadian Parliament authorized a Department of Munitions and Supply to handle all contracts for the Department of National Defence, although for the moment only a lesser War Supply Board was established. A naval shipbuilding programme was initiated, based on the capacity of Canadian shipyards rather than operational needs and on the understanding that the Admiralty would make available all necessary equipment and fittings so that time would not have to be spent in developing manufacturing facilities in Canada. R.C.A.F. requirements came to centre largely around the British Commonwealth Air Training Plan (see paras 31 and 36). Clothing, general stores and mechanical transport were immediate and continuing requirements for the three Services but the 1st Canadian Division was to have its equipment completed following arrival in the United Kingdom. To offset the fact that certain munitions would always have to be accepted from British stocks, the Canadian Government hoped that Canada might supply additional quantities of items it could produce for British needs, to an equivalent money value. But such an arrangement did not prove possible until the early summer of 1940, by which time the British had been forced to the realization that continued resistance, and ultimate victory, would be possible only with munitions from North America (see paras 43-51).

(ii) The Critical Summer of 1940

12. Although a proper Department of Munitions and Supply had replaced the War Supply Board only on 9 Apr 40, no time was lost investigating the industrial capacity of both Canada and the United States for increased war production. Representatives were sent to London to deal with officials of the Ministry of Supply and the new Ministry of Aircraft Production, but until the spring of 1942 Canada House continued to deal directly with the Admiralty for naval requirements. The office established in Washington by the Department of

Munitions and Supply was in a more favoured position, being free to deal direct with American industry (see paras 37-42). Although all British orders were to be placed in Canada through the Department of Munitions and Supply, it was understood that the British would provide technical and inspection personnel to interpret specifications, assist firms with production problems and the subsequent task of inspection (see paras 65-68 and 72).

13. During a visit to Ottawa in August, the Secretary of the U.S. Treasury told Prime Minister King that he was doing everything possible to meet Canadian and British requirements from the United States. He suggested that the best channel was through Mr Arthur B. Purvis of the British Purchasing Commission in New York and the Washington representatives of the Department of Munitions and Supply, rather than through officers of the Canadian Armed Forces (see para 69). On 27 Aug the Cabinet War Committee agreed to this suggestion. On 5 Sep the War Committee rejected a British suggestion that all Commonwealth requirements for controlled stores, which could not be produced internally, should be tabled in London and that a consolidated list of requirements from American industry be forwarded to the British Purchasing Commission for procurement. While recognizing the need for Commonwealth co-operation, the Canadian reply stated that existing arrangements were satisfactory to Canada and that the needs of the other members would be taken into account when Canadian orders were being placed in the United States (see paras 70-71). In this connection it should be stressed that American officials held Mr Purvis in very high regard and trusted his judgement implicitly (see para 63). Indeed, three days after his re-election President Roosevelt announced a "rule of thumb" policy, which had been suggested by Mr Purvis, for the division of American arms output - roughly 50 percent for British and Canadian forces (see para 78).

(iii) Lend-Lease and Mutual Aid

14. In anticipation of the implementation of the Roosevelt-inspired Lend-Lease Bill (11 Mar 41) Mr Purvis was appointed chairman of a British Supply Council in North America to handle policy matters for the several British missions in Washington. In Ottawa it was hoped that the appointment of Hon. C.D. Howe to membership on this Council would result in British and Canadian buying in the United States being co-ordinated (see para 81).

15. Although Canada did not want Lend-Lease aid, feeling that it should be reserved for beleaguered countries and being worried about possible curtailments of its own national sovereignty, some palliative was necessary because of the rapidity with which her supply of U.S. dollars was being drained by an increasingly unbalanced trade with the United States. An answer was soon devised by Prime Minister King and President Roosevelt. According to their informal Hyde Park Declaration of 20 Apr 41, "each country should provide the other with the defence articles which it is best able to produce, and, above all, produce quickly, and ... production programs should be co-ordinated to this end" (see para 94). It was agreed that Canada should supply the United States with strategic raw materials and certain other items vital to the

American economy, and that British-type munitions not favoured by the U.S. Army and Navy should be produced in Canada, purchased by the American Government and then handed over to Britain under Lend-Lease. On 13 May War Industries Limited was incorporated as a crown company to handle such transactions. It did not prove possible, however, to integrate North American resources and facilities completely. Canadian production was geared to British-type munitions and there was a limit to the extent to which it could be adapted to American schedules. Moreover, the larger American industrial potential was better fitted to produce munitions which rapidly became obsolete and required both large numbers of skilled workers and specialized machine tools (see para 98).

(iv) The Munitions Assignment Boards

16. Pearl Harbor brought drastic changes. The United States now required far greater quantities of munitions for its own Armed Forces while, at the same time, the needs of the British Commonwealth were intensified by the entry of Japan into the war. During 1941 the prevailing view in Washington had been that American munitions should be allocated entirely by Americans, but during the "ARCADIA" Conference it was decided to create Anglo-American Munitions Assignment Boards in Washington and London, subordinate to the Combined Chiefs of Staff. In theory, the entire production of Great Britain and the United States was to be pooled and divided among all the United Nations in accordance with strategic needs: American production and the requirements of that Group of Nations would be handled by a Combined Munitions Assignments Board in Washington while a London Munitions Assignment Board allocated British production and the bulk assignment received from the C.M.A.B. to the various claimants of the British Group of Nations. Russia continued as a special case, her requirements being handled under the terms of the Moscow Protocol of 1 Oct 41 and succeeding agreements (see paras 99-114).

17. Despite her increasing industrial potential and somewhat special position as a "middle power", Canada was excluded initially from all the Combined organizations. A telegram of 18 Feb 42, from the Secretary of State for Dominion Affairs, suggested that Canada should associate herself with the British Group of Nations and pool her production in London. Canadian requirements should be decided in London by direct consultation between British and Canadian representatives: the latter would help compile the bulk demands to be submitted by the British to the Munitions Assignments Board in Washington. There was no thought, however, of extending to Canada actual membership on the London Munitions Assignment Board.

18. Acting on what subsequently proved to be unsound advice from Brigadier-General Henry S. Aurand, Chairman of the Munitions Assignments Committee (Ground), the Canadian Government decided late in March to request full membership on the Combined Munitions Assignments Board in return for pooling its production in Washington. The British Government subsequently agreed to support this request, provided that the requirements of the Canadian Army Overseas were excluded and handled by the London Munitions Assignment Board, which would include these

requirements from North American production in its own bulk bid on Washington. During Prime Minister King's visit to Washington, to attend a meeting of the Pacific War Council on 15 Apr, he obtained President Roosevelt's verbal acquiescence in full Canadian membership on the Combined Munitions Assignments Board (see paras 115-131).

19. But the Chairman of the Combined Munitions Assignments Board, Mr Harry Hopkins, was personally opposed to extending membership to Canada or any other nation. Subsequently, a compromise sponsored by Lieutenant-General G.N. Macready of the British Army Staff - that a Canadian representative should attend all meetings but have a voice only when Canadian production was being discussed - was found acceptable by Mr Hopkins. But, although it was generally agreed in Washington that the Canadian member would have to attend all meetings in practice, since every allocation would bear some relationship to Canadian production, this offer of limited membership was rejected by the Canadian Government (see paras 134-143). Instead, the Cabinet War Committee directed that efforts should be made to improve the existing informal arrangements, which permitted Canadian officers to appear before the Munitions Assignments Committees and their sub-committees. Early in 1943 the procedure whereby Canadian requirements had to be submitted through the British members of these was modified: Canadian representatives might submit bids and argue their own cases, provided that informal liaison was maintained. The accepted procedure was to lobby before a meeting and discover whether the several members would support bids in which Canada was interested (see paras 148-156).

(v) Assignment of Canadian Production

20. Even after Canadian industry actually began to produce munitions in sizable amounts the monthly total was considerably less than required to meet contracts. Therefore, early in 1942 an ad hoc committee began meeting in Ottawa to allocate current Canadian production between Canadian, British and War Supplies Limited orders. Initially it was considered that this Joint M.G.O., British Army Delegation and D.M. & S. Committee on Production and Allocation Problems would act only until Munitions Assignment Boards were functioning in London and Washington. But, as a result of Canada's failure to secure full membership on the Combined Munitions Assignments Board, a proper Canadian Munitions Assignments Committee (Army) emerged during that autumn, with Canadian, British and American voting members (see paras 157-161).

21. In the minds of service officers, the glaring fault of the Mutual Aid Board established in 1943 to distribute assistance to Canada's allies was that it was a civilian organization which did not fully comprehend or recognize that assignment of munitions should be subject to the dictates of grand strategy and that military, rather than purely political or economic, factors should govern the course to be followed. On the other hand, as a committee of the Privy Council, the Mutual Aid Board was a "much higher authority" than the Canadian Chiefs of Staff Committee and the Canadian Munitions Assignments Committee (Army). Only during April 1944 was a fairly complicated procedure accepted by all parties (see paras 162-169).

(vi) The London Scene

22. The bulk allocations made in Washington and Ottawa to the London Munitions Assignment Board included specific allotments earmarked for the Canadian Army Overseas and alterable only in the event of changing operational requirements. During May 1942 a Canadian Army Requirements Committee was established overseas to estimate requirements and place bids with the L.M.A.B.; the G.S.O. 1(S.D.) at C.M.H.Q. attended committee meetings to support these bids and those advanced on behalf of the Canadian Army in the North American Area for British-produced munitions. Canadian dealings with the Naval and Air Assignment Sub-Committees of the London Munitions Assignment Board were on a far smaller scale (see paras 176-184).

23. Contracts had been placed with Canadian industry for the total requirements of the munitions it could produce for the Canadian Army, both Overseas and in the North American Area. But the necessity of conserving shipping and the desire to have Canadian formations ready for battle as soon as possible had seemed good reasons for securing from the War Office during 1942 all the controlled stores possible. Although theoretically the War Office should have been eager to accept subsequent Canadian production in replacement, the quantities ordered by the British were so large and the global strategical conditions subject to such variations that there was not always likely to be a ready requirement for the Canadian item. With the equipment of the British Army to establishment now nearing completion and continued demands likely to be limited to "A" and "B" vehicles and small arms, it seemed that production in Canada to complete existing contracts would result in "double provision" of many items. Furthermore, due to the institution of a "manpower ceiling" for the Canadian Army Overseas, it was no longer possible to envisage First Canadian Army operating as a self-contained force and with a separate supply pipe line stretching from Canadian industry to the forward units (see paras 185-187).

24. During the early winter months of 1943 discussions were initiated in London with a view to integrating further Canadian production for the Canadian Army more closely with that of the United Kingdom, equipping the Canadian Army Overseas from British sources except for a number of special items of "continuing Canadian supply" (e.g. battle dress and vehicles) and merging British and Canadian supply channels for Engineer, Medical and Ordnance stores. Negotiations dragged on into the summer. Although such action seemed the only practical solution, there were many details to work out, particularly that of endeavouring to ensure that Canadian-pattern equipment actually would be issued to Canadian units by the British depots in which it was to be held (see paras 188-208). The balance of the Report discusses the manner in which Canadian troops serving in the Mediterranean and North-West Europe were supplied from British Base and Advanced Ordnance Depots and indicates certain of the problems encountered (see paras 209-218).

PART I - EARLY PRODUCTION PROBLEMS

(i) The Situation in 1939

25 Prior to the outbreak of the Second World War Canada possessed no munitions industry. Vast quantities of shells had been produced during The Great War, 1914-1919, but no weapons, except the ill-fated Ross rifle.* During the ensuing two decades only one of the two small Dominion Arsenals remained open, manufacturing limited quantities of small arms and artillery ammunition. The traditional source of Canadian supply remained the United Kingdom, but after 1935 its factories were fully occupied with the British rearmament programme and very little could be sent abroad.

26. In 1937 the Chief of the General Staff advised the Minister of National Defence that smallness of financial appropriations and the difficulty of obtaining delivery from the United Kingdom were the basic reasons why the military equipment deficiencies catalogued earlier had not yet been made good. He had no objection in principle to purchasing from American industry, at least equipment which would not be used by a field force, but existing U.S. neutrality legislation would automatically cut off further supplies and maintenance spares in the event of war. In his opinion, the only truly effective course of action would be the establishment of an armament industry in Canada, even though certain heavy equipments would still have to be bought from the United Kingdom due to the prohibitive per unit cost of manufacturing the small numbers required. Although the question of establishing publicly owned factories, following the example of Australia, was discussed, the Government ultimately decided to rely on private industry (5).

27. Questions of defence and munitions production loomed large at the Imperial Conference of 1937, but the Canadian Government was embarked on a policy of no prior commitments. Although Colonel G.P. Loggie, R.C.O.C., subsequently was attached to the staff of Canada House in London to facilitate the exchange of information on technical matters his approach was indirect, whereas representatives of Australia, New Zealand and India regularly attended meetings in Whitehall of the Principal Supply Officers' Committee which exchanged annual reports with similar committees in those countries (6).

*Likewise, the American Expeditionary Force of 1917-1918 had depended upon great quantities of armaments provided by the British and French. "While the United States supplied most of the food, clothing, and motor transport for the AEF, it produced a mere 160 of the 2,000 75-mm. field guns used by American troops overseas. All 1,000 of the 155-mm. howitzers came from the British and French. The infant air force used 1,000 pursuit planes provided by the French" (4).

28. During the fiscal year 1936-7 a survey of Canadian industry had been undertaken by a Navy, Army and Air Supply Committee, headed by the Master-General of the Ordnance, and by the spring of 1939 some 1600 plants had been surveyed. From the manufacturing point of view, however, firms were not tooled up to produce equipment of British design. Moreover, the design of certain equipments was the property of private British firms which were willing to permit production under license in Canada only for the Canadian Government's own military purposes. This ruled out production for British or other Commonwealth Governments and even Canadian requirements in practice, since these last were too small to justify the expense involved (7).

29. There were, of course, exceptions. One was Bren light machine guns: in 1937 the John Inglis Company of Toronto obtained a British order for 5000 concurrently with a Canadian order for 7000 (such duplication would result in a per unit saving to the Canadian taxpayer) (8). Another was the modest aircraft production programme allotted by the British Air Ministry in 1938 (9), coming on top of orders placed by the R.C.A.F. since 1936 to foster the production in Canada of service aircraft (but not aircraft engines) (10).

30. Until 14 Jul 39, when a Defence Purchasing Board was established under authority of the Defence Purchases, Profits, Control and Financing Act to take over the placing of all contracts in excess of \$5000, the Contracts Branch of the Department of National Defence had purchased such supplies, provisions, clothing, stores and equipment as were required by the Naval, Militia and Air Services and had awarded other contracts as had been necessary (11). The new Defence Purchasing Board engaged a small staff, largely consisting of C.N.R. and C.P.R. employees who had had years of experience in purchasing from heavy industry. During that summer the Canadian Manufacturers Association, with government encouragement, sent a mission to the United Kingdom to study the possibility of Canadian firms obtaining British defence orders. The President of the National Research Council, Major-General A.G.L. McNaughton, accompanied the mission, which returned to Canada just as war broke out. One of the members, Mr A.S. Ellis of the Ford Motor Company of Canada, was placed on loan to the Department of National Defence and remained somewhat longer in England "to procure a broad picture" of the British Empire requirements of standard mechanized transport and armoured fighting vehicles that might be needed to supplement the resources of the United Kingdom during the period of hostilities (12).

31. Following the Canadian declaration of War on 10 Sep 39 the Canadian Parliament passed a War Appropriation Act providing \$100,000,000, imposed a number of special taxes designed to place the war largely on a "pay-as-you-go" basis and authorized the creation of a Department of Munitions and Supply in place of the embryo, but already inadequate, Defence Purchasing Board. At the moment, however, only a lesser War Supply Board actually was established and initially made responsible to the Minister of Finance. (By Order in Council P.C. 3786 of 23 Nov 39 responsibility was transferred to the Minister of Transport, Hon. C.D. Howe.) Headed by Mr W.R. Campbell, President of the Ford Motor Company of Canada, who had other prominent business men as associates, the War Supply Board commenced operations on 1 Nov. In addition to placing

all contracts for the Department of National Defence and having control over war supplies in the narrow sense, it was to make plans for securing materials, oversee all munitions production and co-ordinate the whole industrial effort of the nation towards winning the war (13).

32 On 12 Sep the Prime Minister had told the House of Commons:

...Canada's geographical situation especially fits her to make a tremendous material and technical contribution to the joint effort. This joint effort raises another problem, namely the distribution of available materials as between us and our allies. Now that purchases on a large scale by the British government, and probably by other governments associated with Great Britain in the struggle, are likely to be made in Canada it is advisable that there should be an authority with power to act not only for Canada but as agents for other governments if they should desire it, and in any case to co-ordinate the purchases of the Canadian government with those made for other governments (14).

33. According to a press release issued by the Department of National Defence on 19 Sep, the Canadian programme would endeavour to put "first things first" and co-ordinate Canada's effort with that of the United Kingdom in the most effective way:

As has been anticipated, the British Government has indicated that Canada would be of most assistance at once by facilitating the purchase by the United Kingdom of essential supplies in this country. This will involve immediately the "gearing up" of Canadian industry to meet the heavy demands, and finding some way whereby Canadian dollars may be made available to the British Government to purchase the needed supplies in this country. In the first instance, this will probably involve repatriation of Canadian securities held in London and, at a later stage, the granting of credits (15).

34. To further that end, a Canadian delegation headed by Hon. T.A. Crerar, Minister of Mines and Resources, spent several weeks in the United Kingdom. Information and views were exchanged with British officials and factories were visited. Only during the summer of 1939 had a Ministry of Supply been established in the United Kingdom to relieve the War Office of its responsibilities for research, development and production of munitions. The Admiralty continued to handle its own procurement problems, however, successfully arguing that its existing peace-time organization had a special industry at its disposal and that wartime expansion would not be on anything like the scale required to meet the Army's current

and future needs. Similar arguments were employed by the Air Ministry to prevent its requirements branch being absorbed by the Ministry of Supply: not until May 1940 did a changed situation result in the establishment of a separate Ministry of Aircraft Production (16).

35. But things did not work out as the Canadian Government had envisaged. This was not a spectacular type of war effort guaranteed to stir the general public. Canadian industry was not sufficiently advanced in 1939 to make possible a rapid conversion to munitions production, except for ammunition and explosives. Therefore, in view of the ruling hypothesis of a three-years' war, Britain would gain little by encouraging a long term production programme in Canada. Moreover, British manufacturers did not wish to establish competitors who would trouble them after the War, while the British Government was anxious to conserve Canadian credits for the purchase of food and raw materials (17). On 8 Dec Hon. C.D. Howe told the members of the Cabinet War Committee that, apart from orders for Lysander aircraft, British contracts placed in Canada totalled only \$5,000,000. It might be noted that this British policy of treating North America as a marginal source for munitions bore even more heavily on American industry.*

36. By pre-war standards, however, sizable contracts were being let for Canada's own Armed Forces. Clothing, personal equipment, camp and barrack stores, and mechanical transport were immediate requirements. A naval shipbuilding programme was initiated, based on the capacity of Canadian shipyards rather than operational needs and requirements and on the understanding that equipment and fittings would be obtained from the United Kingdom through the Admiralty so that the corvettes and minesweepers under construction could be commissioned more rapidly than if time were spent in developing manufacturing facilities in Canada (19). R.C.A.F. requirements largely centred around the British Commonwealth Air Training Plan scheduled to commence operations on 29 Apr 40. In this connection, it might be noted that the United Kingdom's share was to be supplied in kind - engines for airframes manufactured in Canada on British contracts, service aircraft, spare parts and other equipment.

*According to the British official historical volume North American Supply by H. Duncan Hall:

The strength and persistence of the policy of treating the United States as a marginal source in the matter of war supplies was shown in a statement by the Minister of Supply (Dr. Leslie Burgin) on 19 March 1940. The statement dealt with the expansion of British industrial production and decreasing British dependence on foreign supplies. As United Kingdom, Empire and Allied production increased, the Ministry of Supply, 'the largest trading concern in the world', would spend less and less abroad. But purchases in the next six months would be specially important because they would give a breathing space for production in the United Kingdom to come up to capacity (18).

(ii) Creation of a Department of Munitions and Supply

37. On 9 Apr 40 the staff of the War Supply Board became the nucleus of a new Department of Munitions and Supply, headed by Hon. C.D. Howe. Mr G.K. Shields, who had been appointed Director of Administration of the War Supply Board on 22 Jan 40, became Deputy Minister. In addition to being responsible for ensuring that the prices paid were fair and reasonable Mr Howe was given wide powers to compel manufacturers and construction contractors to do whatever the exigencies of the war demanded, for such prices and on such terms and conditions as he might consider fair and reasonable (20). Representatives were sent to London to deal with officials of the Ministry of Supply and the new Ministry of Aircraft Production, but until the spring of 1942 Mr E.J. MacLeod of Canada House continued the pre-war practice of dealing directly with the Admiralty over the lesser requirements of the Royal Canadian Navy (21). Department of Munitions and Supply representatives despatched to Washington were in a more favoured position, being free to deal direct with American industry.

38. Following his return to Canada from overseas in May 1940, the Minister of National Defence gave the Cabinet War Committee an unflattering picture of the United Kingdom's war effort (see paras 50-51). At this meeting of 17 May the Prime Minister pointed out that many Canadian factories were only waiting for orders to undertake war production. The draft of a telegram to Prime Minister Churchill, stressing the need to encourage war production in Canada, was discussed and the telegram despatched on the following day. Not until 5 Jun, however, was Mr Howe able to inform the Cabinet War Committee that the situation regarding British orders was improving.

39. On 14 Jun the Cabinet War Committee agreed to accept the following proposition, advanced by the Master-General of the Ordnance in a memorandum of 18 May to the Minister of National Defence: Canada should undertake the manufacture of all articles of armament stores for her troops overseas, which, whether by character or quantity, could be produced economically in Canada.

40. On 25 Jun Messrs Ralston, Howe and Power met with some of their subordinates to discuss the possibility of obtaining a far wider range of weapons and equipment for all three Services from Canadian and American industry (22). Mr Howe held a further meeting on 5 Jul with representatives of the Navy to consider the question of meeting naval requirements from Canadian industry (23). But in a letter of 15 Jul to the new Minister of National Defence for Naval Services, Mr Howe summed up this last problem as follows:

Unfortunately, it has been the policy of the navy for many years to purchase supplies from the British Admiralty, so that new Canadian sources of supply are involved in obtaining practically all items on your list (24).

It would thus be quite an undertaking to meet the Royal Canadian Navy's requirements, even apart from those of complicated and large destroyers, from North American sources - especially now

that most of the existing Canadian industrial capacity was busy producing for the other Services.(25). Yet this was done (see paras 65-66).

41. Strangely enough, even in this hour of need the Aircraft Production Branch of the Department of Munitions and Supply experienced great difficulty in obtaining orders for front line aircraft. Not until the beginning of 1941 were sufficient orders for fighter and bomber aircraft on hand to justify large-scale plant expansion (26). The production of certain British types was then undertaken on the understanding that the remaining Canadian requirements for home defence would be provided by the Air Ministry from its bulk allotment of American-produced aircraft (27). Although the Air Ministry continued to provide its share of expenses in kind for the British Commonwealth Air Training Plan, an arrangement was made whereby Canada might manufacture locally, at the expense of the United Kingdom, aircraft spares that could not readily be supplied from England (28). It might further be pointed out that the bulk of the British share of training aircraft actually was acquired from those manufactured in Canada to British order and those obtained by the British Air Commission in Washington from United States production (29).

42. The pattern that was to follow for Canadian production has been well summarized in the official History of the Department of Munitions and Supply:

1940 will be seen as a year of organizing and planning with only a trickle of war supplies coming from the few sources that were available; 1941 a year of construction of new plants, of conversion and expansion of existing plants, of programmes being constantly enlarged and all available output being rushed forward to the United Kingdom, which was then fighting alone against the might of a victorious Germany; 1942 a year of rising production, a year of objectives reached and passed in the face of technical and other difficulties; 1943, a year of output so great that the industrial capacity and the national economy were strained to their utmost, a year that ended with approximately 5,000 persons in the employment of the Department, 25,000 in the employment of the Crown Companies and approximately 1,000,000 persons engaged directly or indirectly in war work; and 1944 to the end of the war a period when the requirements of the Armed Forces decreased and production programmes were curtailed (30).

(iii) Equipment for the Canadian Army
Overseas, 1939-1941

43. On 10 Oct 39 a meeting of Dominions' representatives in London with the Parliamentary Secretary to the Minister of Supply agreed that the requirements of the several Dominions for their Armed Forces from British sources should be handled by the respective United Kingdom departments. These requirements would be lumped with those of the British departments when allocation of materials in short supply was under discussion (31).

44. On 30 Oct Colonel Loggie wrote the Secretary of State for War that as well as sending the 1st Canadian Division overseas largely complete in personal equipment the Canadian Government could provide "a large portion of the mechanical transport, if not to accompany the Division, at least very shortly after despatch" (32). It also could place orders in Canada for other items, either to equip the Division or as replacements, if the War Office would indicate what was required. Discussing the equipment situation in Ottawa on 22 Nov the Master-General of the Ordnance agreed with General McNaughton that it was "essential to initiate manufacture of guns in Canada for Canadian forces at earliest possible moment". Both officers felt that "the fact that replacement weapons were in production in Canada would strengthen General McNaughton's hand in obtaining up to date equipment from the War Office" (33).

45. On the other hand, the War Office had already promised that the 1st Canadian Division should be furnished with equipment on a "training scale" following arrival in the United Kingdom and that all units would be fully equipped a month before leaving for France (34). On 5 Dec Mr Howe agreed to the suggestion made by the Department of National Defence that General McNaughton should be empowered to obtain necessary stores and equipment from the War Office (35). Such requisitions on the War Office would be checked by the Overseas Office in London of the Comptroller of the Canadian Treasury. Prices charged the Canadian Government for British ordnance stores included two elements: the basic cost to the War Office; and departmental expenses covering the cost of inspection, storage, packing, handling, interest on capital and headquarters administration up to the point of issue to Canadian units from R.A.O.C.* Depots in the United Kingdom (36). There were, however, serious deficiencies in the stocks of R.A.O.C. Depots and this resulted in the training scale issued to the Canadians being meagre in guns, vehicles and certain other technical stores. On 24 Feb 40 a Canadian Group was formed within the R.A.O.C. Field Stores Depot at Aldershot to store, handle and issue Canadian-owned ordnance stores received from Canada: although staffed with R.C.O.C. personnel it was under the executive control of an R.A.O.C. officer. During May a Canadian M.T. Depot was established at Bordon, to check and hold vehicles from Canada that had been assembled by either the Canadian Mechanization Depot in Southampton or the Ford Motor Company's plant at Dagenham, and to make all issues to units (37).

46. Naturally the Canadian Government was interested in an arrangement whereby replacements might be provided from Canadian industry. To offset the fact that certain munitions would always have to be accepted from British stocks it was hoped that Canada might supply additional quantities of items it could economically produce for British needs, to an equivalent money value. In the belief that the British Supply Board in Canada and the United States (see para 61) had been empowered to place orders for 25-pr and 2-pr equipments in Canada, Colonel Loggie wrote the War Office on 17 Jan 40 to ascertain whether the Canadian Government should place complementary orders "and if so would these, when available, be accepted in replacement of equipments of both natures which the

* Royal Army Ordnance Corps.

War Department are now supplying to Canadian troops for Canadian account" (38).

47. The Director-General of Munitions Production at the Ministry of Supply, who received a copy of this letter, could see no objection and in his reply of 19 Jan stated:

We should hope that any such action would improve rather than impede deliveries on our contracts. Moreover, if, as you have proposed to the War Office, this supply is taken in aid of Canadian contingent requirements, it will all be for the common good (39).

He gave a similar verbal assurance to Lt.-Col. W.A. Harrison and Mr E.A. Bromley, who were sent over to the United Kingdom in March by the Canadian War Supply Board, but failed to confirm it in writing. Then, during mid-March, he advised Harrison and Bromley that any such pooling arrangement would have to be made with the War Office (40). The answer of its Deputy Director of Army Requirements, despatched on 24 Mar 40, was unfavourable to say the least:

... the Department prefer that complementary orders for 25 pounder or 2 pounder equipments should not be placed by the Government of Canada.

The programme now being dealt with by the Ministry of Supply covers the equipment and maintenance of the Canadian Contingent and will provide a margin for the supply of any local requirements of Dominion Governments. An exception to this arises of course in respect of any special patterns, e.g. badges, which Dominion Governments themselves undertake to supply.

I am accordingly to suggest that in respect of the Dominion Contingent which is already in this country the Government of Canada should leave the matter of initial provision and maintenance of their equipments entirely in the hands of the War Department, and that in respect of training or other requirements in the Dominion the Government of Canada should requisition the quantities desired through the War Department to be met from deliveries off the bulk purchases of the Ministry of Supply (41).

48. On 18 Mar Lt.-Col. Harrison and Mr Bromley had been told by Rt. Hon. Anthony Eden, Secretary of State for Dominion Affairs, that the Canadian proposal was not unreasonable, however, and during the course of a meeting at the War Office on 28 Mar it was suggested that they have Mr Massey put forward a formal request (42). This the Canadian High Commissioner did on 1 Apr, suggesting to Mr Eden that:

... to offset the supply of equipment by the United Kingdom Government of a kind which cannot be manufactured in Canada, the Department of National Defence should be accepted as the source for replacing articles which can be economically manufactured in Canada and that, in the case of certain articles which Canada is not in a position to produce, the Canadian Government should supply other articles required by the United Kingdom Government to an equivalent

money value. It is hoped that such a pool arrangement might be made to cover the equipment supplied not only to the First Division and Ancillary Troops but to other Canadian forces coming overseas during the course of the war (43).

49. On their return to Canada in early April Lt.-Col. Harrison and Mr Bromley recommended to Mr Howe that a permanent representative of the new Department of Munitions and Supply should be stationed in London to work with the branches of the Ministry of Supply, since it would not be feasible to buy direct from British firms, which were operating under government controls (see para 37). Furthermore:

So far as the requirements of Canadian troops in the theatre of war are concerned, it is felt we will have to draw these supplies from the British, as otherwise we would have to maintain our own depots which is considered impracticable at the present time, especially having regard to the transportation problem (44).

In their opinion, the existing procedure should be continued, whereby officers at Canadian Military Headquarters and officials of the Canadian Treasury Office in London checked the charges made by the War Office.

50. No answer having been received to Mr Massey's letter of 1 Apr 40 the matter was taken up by the Minister of National Defence when he visited the United Kingdom. During a meeting with the Chancellor of the Exchequer, the Secretary of State for Dominion Affairs, the Minister of Supply, the Secretary of State for War and others on 26 Apr, Hon. Norman McLeod Rogers stated that, unless some arrangements could be reached quickly, Canadian war plants would have completed the majority of their contracts within six months and would become idle. The British ministers agreed that some procedure involving credits could be worked out (45).

51. On 3 May the Secretary of State for War told Mr Rogers that any future agreement on the matter of "barter" in war supplies (or the adjustment of financial balance between the U.K. and Canada by the provision of "goods" or military equipment, rather than by the transfer of funds) could be negotiated by the British Government only on the basis that:

- (a) The U.K. Government could not be expected to accept any Military supplies which it did not need.
- (b) Should direct provision in kind be acceptable, or equivalent exchange in different kinds, of supplies or equipment manufactured in the U.K., the U.K. cost should be the basis of financial adjustment.
- (c) Should credit be established by the provision of Canadian manufactures, not produced in the U.K., the Canadian price should govern (46).

It was further suggested that, to avoid endless complications, such "barter" arrangements between the War Office and the Department of National Defence should be restricted to military

supplies. Canadian acceptance was notified in a letter of 15 Jul, which pointed out, however, that "the fact that the United Kingdom had been replacing certain arms and equipment up to the present would not prevent Canada from supplying such replacements for Canadian troops when the Dominion is in a position to do so" (47). In the case of direct exchanges, article for article, or equivalent exchange for equipment which was in production in the United Kingdom, the British cost would be the basis of financial adjustment. In the case of provision by Canada of Canadian goods, not in production in the United Kingdom, the Canadian price would govern.

52. The actual equipment situation in the United Kingdom, which had been bad enough, became infinitely worse following the withdrawal from France. On 8 Jul 40 Dominion representatives were advised of three categories under which the War Office would issue equipment in future: a training scale of approximately 25 percent; a higher training scale of approximately 50 percent; completion to 100 percent of war establishment. Apart from deficiencies resulting from the 1st Canadian Infantry Brigade's hurried trip to France, the 1st Canadian Division already was among the formations in the last category. Steps were now being taken to repair these deficiencies before invasion should become imminent. Delivery to Canada of certain orders already contracted for, however, was no longer possible (48).

53. On several occasions during the summer of 1940 General McNaughton expressed concern as to the desirability of despatching further units from Canada in view of the shortage of equipment in the United Kingdom. In a telegram of 15 Aug, addressed to the Chief of the General Staff in Ottawa, he stressed that units should be provided with as much equipment as possible before leaving Canada (49). During a meeting at the War Office on 30 Aug the Assistant Chief of the Imperial General Staff advised General McNaughton that equipment must first be issued where most needed - the Middle East. Canadian units were, however, promised the lower (25 percent) training scale as soon as possible after arrival in the United Kingdom (50).

54. Subsequently, on 15 Oct the Secretary of State for Dominion Affairs telegraphed the Secretary of State for External Affairs in Ottawa that allocation must be determined in accordance with operational needs. Dominions forces in their home country would have to accept a very low priority, even though their deficiencies were great. It was hoped that by the end of the month the War Office would have completed a tabulation of such deficiencies. Thereafter, it was hoped to render a monthly report on the current Empire equipment situation to the Dominions' representatives in London. Uncontrolled stores would be distributed immediately they were available, by Ordnance Services at the War Office, but the bulk of the Dominions' deficiencies in controlled stores could not be met until after June 1941, unless there was a change in the strategical situation (51). Actually, however, the Ordnance provision sections within the War Office were still compiling Dominions' deficiencies during December 1940 (52).

55. During January 1941 it was decided to divorce questions of equipment from the hitherto regular monthly meetings at the War Office with Dominions' representatives (53). The first of a new series of monthly meetings, presided over by the A.C.I.G.S. (Lieutenant-General G.N. Macready) and with Dominions' representatives in attendance, was held on 8 Feb: in accordance with a ruling by the Chiefs of Staff Committee, such meetings could allocate up to 50 percent of the production of controlled stores to overseas theatres (54).

56. Certain changes evolved from experience but by September 1941 the system worked as follows. The A.C.I.G.S. monthly meeting allotted up to 50 percent of the British production of major controlled stores to Empire and Allied units overseas. Up to 50 percent of all other items of British production were allotted overseas by the monthly Branch Priority Meeting at the War Office. The remainder of the available controlled stores (approximately 50 percent) was divided among the forces in the United Kingdom (including the Canadian Army Overseas) at the P.P.U. Meeting (Priority of Preparation of Units Committee), held monthly by the Director of Staff Duties at the War Office (55).

57. Canadian Corps submitted its demands for controlled stores to G.H.Q., Home Forces while C.M.H.Q. approached D.D.S.D.(7) at the War Office for the similar requirements of the units under its command, sending an officer to the monthly P.P.U. meeting to support its bid. Ordinarily, the issue of uncontrolled stores was a routine matter and was handled by the appropriate Ordnance authorities. As regards the Canadian Army in Canada, a representative from C.M.H.Q. submitted bids for major items of controlled stores at A.C.I.G.S. monthly meetings, while a Department of Munitions and Supply representative attended Branch Priority Meetings to support bids for other items. It must be borne in mind that munitions manufactured in Canada and elsewhere on British contracts were allocated by these committees in London and that quantities of these might be allotted to units of the Canadian Army Overseas. Furthermore, since total monthly Canadian production was still considerably less than anticipated it was necessary for the Department of Munitions and Supply and the Ministry of Supply to decide how the current output should be divided between the outstanding Canadian and British contracts (see para 157).

58. The greater part of the controlled stores arriving from Canada during 1941 were allocated to Canadian Corps, which arranged its own system of priorities. Actual issue was handled by Ordnance Services, C.M.H.Q., which also released anything left over to units under the command of C.M.H.Q. without reference to the General Staff.(56). All "B" vehicles, except for a few special types, were Canadian supply, but universal carriers were the only "A" vehicles as yet being received from Canada. The following weapons and technical stores were entirely Canadian supply, except for such urgent demands as found Canadian stocks temporarily insufficient: rifles, pistols, Vickers and Bren machine guns, Thompson sub machine guns, 3-in. mortars, binoculars, field clinometers, prismatic compasses, watches and the like (57). The distribution of the uncontrolled stores received from Canada was handled as a purely routine matter by Ordnance Services.

59. During the summer of 1940 the Canadian Group at the R.A.O.C. Field Stores Depot, Aldershot, had been moved to Crookham but remained under British control (see para 200). Canadian M.T. spares were handled entirely by the British Central Ordnance Depot at Chilwell, since Canadian requirements were only a fraction of the capacity of this huge depot (58). With Canadian industry turning out sufficiently large stocks of war materiel by early 1941 to enable considerable quantities being shipped overseas, General McNaughton began to urge that the Canadian Army Overseas should become as self-contained as possible and that "only such articles as may be absolutely necessary" should be purchased from Great Britain (59).

A direct chain of R.C.O.C. supply should be established from the manufacturers in Canada to the troops of his Corps. General McNaughton's reasons for wanting Canadian equipment were based on: first, its established reputation for quality and a standardization of parts and components which permitted easy maintenance; secondly, through close contact with Canadian industry any developments and improvements initiated in the field could be incorporated into the equipment to the advantage of the troops; finally, the men and women working in Canadian war plants would be encouraged to greater production if they knew that their efforts were going to equip Canadian troops (60). During the summer General McNaughton pressed his views on a number of visitors, including Prime Minister King (61). The Minister of National Defence visited the United Kingdom in October and studied the proposals but seemed reluctant to agree: Mr Ralston pointed out that the original agreement had been that "we would provide our own supplies as far as possible, but would obtain any shortages from the British" and questioned whether the establishment of a Canadian Base Ordnance Depot would justify the added cost and personnel (62). Doubts were later expressed in Ottawa as to whether the formation of a Base Ordnance Depot would be a wise move in the event of the Canadian Corps leaving England, but acceptance finally was gained early in 1942. During the spring and early summer of 1942 a Canadian Base Ordnance Depot of three, and subsequently four, sub-depots was established to handle all ordnance stores (including vehicles) received from Canada and those that continued to be obtained from the British (63).

(iv) Purchasing Organizations in North America, 1939-1940

60. As early as January 1939 the British Government had considered the practicability of establishing a purchasing mission in the United States. However, the strong "isolationist" sentiment then prevalent, coupled with the "arms embargo" clauses of the U.S. Neutrality Act, made it advisable for the British Purchasing Mission to establish its headquarters in Ottawa during September (64). Actually its principal function in Canada disappeared almost immediately, as a result of the Canadian Government's decision that all purchases from industry should be conducted through its newly instituted War Supply Board (see para 31); what remained was really a role as technical adviser and consultant. Once the "arms embargo" clauses were replaced by "cash and carry" limitations on 4 Nov 39 the interested belligerents could buy what they liked in the United States, assuming they possessed the necessary American dollars.

61. On 7 Nov 39 the British Government announced that it was replacing its existing purchasing machinery by a British Supply Board in Canada and the United States. British purchases in Canada would be made through the Canadian War Supply Board; purchases in the United States would be placed through a British Purchasing Commission headed by Mr Arthur B. Purvis, a prominent Scots-Canadian industrialist who, among his other business interests, was then serving as President of Canadian Industries Limited. Mr W.R. Campbell of Canada's War Supply Board and Mr Purvis were appointed to this central British Supply Board, which included representatives of the Admiralty, Ministry of Supply, and British Treasury (65). The paucity of the British orders placed in Canada has been

noted above (see para 35). Apart from orders for aircraft and a few peculiarly American items such as the Thompson sub machine gun and the Sperry A. A. predictor, British representatives placed very few firm orders in the United States. More often there merely were inquiries about supplies which might be purchased, if they could be had cheaply and quickly, should British production become interrupted (66).

62. Late that same month it was decided to extend the unified economic co-operation, exemplified by the Anglo-French Co-ordinating Committee established in London under the chairmanship of M. Jean Monnet, to the formation of an Anglo-French Purchasing Board in the United States. This Board was to comprise members of both the British and French Purchasing Commissions, themselves only loosely federated committees, and was to be headed by Mr Purvis (67). Mr W.R. Campbell of Canada's War Supply Board was admitted to membership. In part, at least, this action was taken because of pressure from the United States Government, which also preferred that the Commonwealth countries should first co-ordinate their needs with the British Government and use a common channel of approach (68).

63. Even though the expansion of industry required for the United States' own "war preparedness programme" was still relatively small, it was imposing a distinct strain on the American economy, when added to the increased demands of the civilian consumer whose income was now rising and the British and French purchasing agents. As early as 6 Jul 39 President Roosevelt directed that the Army and Navy Munitions Board (headed by the Assistant Secretaries of War and the Navy) should attempt to co-ordinate the purchase of munitions for the British, French and American forces through a special Clearance Committee. On 6 Dec 39 the President directed that an interdepartmental committee assume these functions, serving as the exclusive liaison authority on procurement matters between the United States and interested foreign governments; it was responsible to the President through Secretary of the Treasury Henry Morgenthau, Jr (69). Beginning with January 1940 the Allied Missions were required to submit to the President's Liaison Committee a weekly statement of the purchases that they were making or intended to make (70). By mid-1940 this liaison body had been given the official designation of Interdepartmental Committee for Co-ordination of Foreign and Domestic Military Purchases (Colonel James H. Burns was U.S. Army representative). Fortunately Mr Purvis got on extremely well with Mr Morgenthau, who wrote after the War:

From the first Purvis impressed me tremendously. He was not only the ablest British representative in Washington, but one of the rarest individuals I have ever known. His death in an airplane accident in 1941 was an almost irreplaceable loss.... I trusted Purvis more than any other British representative. We took every opportunity to make it clear in London, which occasionally tried to undercut him, that he was the man we proposed to deal with. (71).

64. Following the fall of France the Anglo-French Co-ordinating Committee was disbanded but many of its activities in London were taken over by an interdepartmental North American Supply Committee headed by Sir Arthur Salter,

Parliamentary Secretary to the Minister of Supply. Existing French contracts in the United States were transferred to the British Purchasing Commission and H. Jean Monnet took a position under Mr Purvis. Moreover, the British were now forced to the realization that continued resistance, and ultimate victory, would be possible only with munitions from North America. The new British watchword became the utmost supply of arms in the next six months, quickly and at all costs (72).

65. The British Purchasing Commission now became divorced from the hitherto theoretically superior British Supply Board in Canada and the United States. The latter became defunct on 31 Aug 40, having already been replaced in Ottawa by a United Kingdom Technical Mission. During June a separate British Admiralty Technical Mission had arrived in Ottawa to investigate the possibility of manufacturing "Admiralty pattern" stores in Canada and increasing the capacity of Canadian shipyards. Although all British orders were to be placed in Canada through the Department of Munitions and Supply it was understood that the United Kingdom would provide technical and inspection personnel to interpret specifications, assist firms with production problems and the subsequent task of inspection. The British Admiralty Technical Mission assisted the British Purchasing Commission in a like manner as regards naval purchases made in the United States: these last were, however, mainly stores of commercial pattern, torpedoes, ammunition and Oerlikon guns (73).

66. By lumping British and Canadian naval requirements in the same contracts the Department of Munitions and Supply was able to make an offer attractive enough to encourage sufficient Canadian firms to develop production. Eventually Canada was to become largely self-sufficient in all but the production of larger guns, torpedoes, certain types of ammunition and more technical equipment. Since the Department of Munitions and Supply and the Royal Canadian Navy had assumed responsibility for constructing and equipping all vessels building in Canada it was only natural that the Admiralty should be asked to provide those items that they could not procure. After all, the requirements of the vessels on order for the British Admiralty Technical Mission had to be met. Therefore, Canadian requirements came to be included in the shipments of "Admiralty pattern" stores and guns that reached the B.A.T.M.'s Toronto warehouse from the United Kingdom and Bermuda, and the United States (74).

67. The British Supply Board in Ottawa had failed to fulfil its original purpose because the Canadian Government, already handling purchases for the British Government in Canada, preferred to have direct relations with the relevant departments in Whitehall. On the other hand the several British missions in the United States succeeded because they had to do the buying; even though benevolently neutral, the American Government could not make purchases for a belligerent United Kingdom, particularly with British funds (75).

68. In addition to permitting the sale of weapons and equipment declared surplus to American defence requirements during the weeks following Dunkirk, President Roosevelt had created an Advisory Commission to the Council of National Defense in May to plan future production, and in June had appointed Mr Donald Nelson as Co-ordinator of National Defense Purchases (76). However, Mr Morgenthau was to warn Mr Purvis

that, if the claims of the belligerents were not concisely and collectively stated, they might be swept aside should the United States become a belligerent; a complete statement of Allied requirements was essential. These warnings were, in turn, passed back to London (77). According to the volume on British War Economy by W.K. Hancock and M.M. Gowing:

Both as a British and as an Allied official, Purvis [had] found his work hampered by the 'uncontrolled purchases' which, as he repeatedly complained, 'destroyed his background' with United States industry and the United States Government. Not until the early summer of 1940 did he win decisive success in the struggle to extend his own direct responsibility of purchase, and - what was no less important - to receive as of right complete detailed information about the actions and plans of all other purchasing bodies. This information was essential to him if he were to secure for the Allies, or for Britain alone, a fair share of the expanding American production (78).

69. During a visit to Ottawa in August 1940 Mr Morgenthau told Prime Minister King that he was doing everything possible to meet Canadian and British needs. He suggested that the best channel was through Mr Purvis and the Washington representative of the Department of Munitions and Supply, rather than through representatives of the Canadian Armed Forces. (An air attaché had been serving at the Canadian Legation since February 1940 to advise on aircraft procurement and naval and military attachés went to Washington early in September.) On 27 Aug the Cabinet War Committee agreed to this suggestion, bringing to nought a proposal by Mayor La Guardia that Canadian orders in the United States should be channelled through him, in his capacity as chairman of the American Section of the recently created Permanent Joint Board on Defence.

70. Consequent upon a meeting held in New York about the same time, and attended by representatives of the United States, the United Kingdom, Canada and Australia, the British Government had reached the following conclusions:

- (a) Imperative that requirements of Commonwealth should be co-ordinated, presented as a whole and dealt with through British Purchasing Commission.
- (b) That Commonwealth requirements should be set high enough now before United States programme has been settled and organized in detail (79).

The British view was that all Commonwealth purchases should be made through, or in co-operation with, the British Purchasing Commission. Since American productive capacity was not unlimited it would be essential for Mr Purvis to submit a complete and comprehensive list of Commonwealth requirements to the United States Government's Defense Advisory Commission as soon as possible. And since the supply of many major items would not be sufficient to meet the demand there would be questions of priority and allocation. The British Government believed that these questions should be settled in London, rather than

New York, "as part of general war strategy and through whatever forms of joint Commonwealth consultations prove most suitable" (80). Therefore, the British Government wished the Dominions to table in London their requirements for whatever controlled stores could not be produced internally. A consolidated Commonwealth programme of purchases in North America should be forwarded to the British Purchasing Commission as soon as possible. The telegram conveying this information to Ottawa concluded as follows, however:

The Dominions Office appreciate that the suggestions made above are, in certain respects at least, more applicable to other Dominions than to Canada, which has special relations with the United States. They hope, however, that the principles enunciated will commend themselves to the Canadian Government, and will be glad to have your observations thereon (81).

71. At its meeting of 5 Sep the Cabinet War Committee rejected this proposal, although an answer was not despatched to London until 19 Sep. While recognizing the need for Commonwealth co-operation with regard to purchases in North America, the Canadian Government felt that the existing arrangements were satisfactory to Canada and replied that the needs of the rest of the Commonwealth would be taken into account when placing Canadian orders in the United States (82).

72. Agreement was reached in October, however, that an Inspection Board of the United Kingdom and Canada should be created to replace the several existing small inspection staffs, and be entirely independent of all production or purchasing agencies. This Board was made jointly responsible to the High Commissioner for the United Kingdom in Canada and the Minister of National Defence: it was headed by a British officer as Inspector-General (Major-General R.F. Lock) and there were two Deputy Inspectors-General, one for Canada and one for the United States (83).

73. By now a Joint Aircraft Committee in Washington was busily investigating the problems involved in standardizing American combat aircraft and determining the numbers that should be produced to meet Anglo-American needs. The initial committee of two representatives of each of the United States Army Air Corps, United States Navy, British Air Commission* and the Office of Production Management had been joined by representatives of the President's Interdepartmental Liaison Committee and the Advisory Commission to the Council on National Defense. A Subcommittee was created to allocate deliveries, becoming the first step towards a policy of assigning American munitions (84).

74. On 2 Oct 40 Sir Walter Layton, Economic Adviser to the British Purchasing Commission, wrote Secretary of the Treasury Henry Morgenthau that:

*Later one of these was to be appointed from the R.A.F. Delegation.

It is essential that the programmes of the United States and British requirements be as much as possible co-ordinated so as to prevent competition arising in the industrial field.... To this end we must seek a common programme agreed and adjusted to the conflicting requirements of immediate and ultimate aid (85).

But Sir Walter Layton was immediately referred to the U.S. War Department, for "as British procurement impinged more and more upon American rearmament it was more and more with the American users of military equipment that the British had to deal" (86).

75. On 3 Oct Sir Walter Layton and three of his associates held the first of a number of discussions with U.S. War Department officers on the overall question of standardization. It was quickly agreed that British aircraft production should be integrated with American; however, British orders for equipment not standard in the United States were regarded with a jaundiced eye (87). The same reasoning was extended to army ordnance items. (As early as 24 Aug Secretary Morgenthau had offered to finance the production of British requirements, if they were for "common types" that the U.S. Army had adopted, or could adopt.) (88). Whereas Professor M.M. Postan's volume British War Production deplores the fact that British demonstration teams were unable to convince American officers of the superiority of British weapons. (89), an American official volume suggests that U.S. weapons were better, equal, or nearly equal, in performance and could be produced more quickly - and above all, in far greater quantities - by American industry (90). Although the Americans considered that the British 25-pr was inferior to their own 105-mm howitzer and that their own anti-aircraft and anti-tank guns and service rifles could be manufactured far more readily than the British counterparts, they did come to accept the 20-mm Oerlikon and 40-mm Bofors anti-aircraft guns and agreed to modify their existing M.3 medium tanks sufficiently to British specifications to produce the M.4 Sherman tank (91).

76. "While the supply of stores other than those of standard American pattern was often absolutely vital to the British", the British official volume entitled Studies of Overseas Supply suggests that "their manufacture seemed to the Americans, as indeed it was, thoroughly uneconomic and anomalous" (92). On the other hand:

...as a general rule ... the British were keener to secure delivery of non-common stores, class for class, than of any other. The point is indeed obvious: the non-common equipment was what they really wanted, while the standard American material, except in the few cases where the United States forces had adopted British designs, was a pis aller. Components, in turn, were more precious than finished equipment of any type. A fairly small import of key components could make a very great difference to British output, and the maintenance or expansion of British output was more highly valued than the prospect of an equivalent increase in American production, the fruits of which the British could never be sure of enjoying (93).

Therefore, some friction was unavoidable.

77. Back in September 1940 Sir Edward Layton had told Mr Morgenthau that requirements for equipments of British pattern would be ordered from Canadian industry as far as possible (94). Canadian productive capacity could never be large enough to meet all British requirements from abroad, however, so it was now suggested that a block of 10 British divisions for service in the Middle East should be equipped with wholly American-pattern weapons (95). This found acceptance in the Stimson-Layton agreement of 29 Nov 40 (although actually when these weapons became available in 1942 they were diverted, by common consent, back to the U.S. Army).

78. Three days after he had been re-elected President, Mr Roosevelt announced a "rule of thumb" policy that had been suggested by Mr Purvis for the division of American arms output - roughly 50 percent for British and Canadian forces (96). Both the United States Army and Navy were dubious about the wisdom of such action, since their own growing forces were woefully short of equipment, but the President had more correctly diagnosed American's first line of defence as being the British Isles

(v) Lend-Lease, 1941

79. By the late autumn of 1940 the United Kingdom had virtually exhausted its supply of U.S. dollars and had almost stopped placing contracts in the United States. For some time President Roosevelt had been giving considerable thought to this financial dilemma but a practical solution was found only in December, during his cruise to the Caribbean and following the receipt of a long and detailed letter from Mr Churchill discussing the British outlook for 1941 (97). The solution was made public at a press conference on 17 Dec. Henceforth, President Roosevelt explained, defence of the United States and not dollars would determine where American munitions would go. The United States Government would place all contracts for war materiel. But, should it be decided that any particular munitions "would be more useful to the defense of the United States if they were used in Great Britain than if they were kept in storage here," the United States could "either lease or sell the materials, subject to mortgage, to the people on the other side" (98). On 10 Jan 41 a bill was introduced simultaneously into the Senate and the House of Representatives and became law as the Lend-Lease Act on 11 Mar. It authorized the President to furnish material aid, including munitions, to all countries whose resistance to aggression was contributing to the defence of the United States:

The terms and conditions upon which any such foreign government receives any aid...shall be those which the President deems satisfactory, and the benefit to the United States may be payment or repayment in kind or property, or any other direct or indirect benefit which the President deems satisfactory (99).

Henceforth procurement became a governmental matter and its extent "was controlled, firstly, by the funds which Congress could be induced to assign for the purpose, secondly, by the general volume of American defence production, and thirdly,