

This memo was composed by Foulkes as an aide-memoire in talks with the US President and Secretary of State. Highlighted areas are incorrect assumptions, some of which were definitely not agreed to willingly by the CAS of the Air Force. In fact AM Hugh Campbell, CAS, let it be known to the CBC as related in their documentary "There Never Was an Arrow", that the Chiefs did not recommend cancellation. LGen Reg Lane, a personal contact, is also interviewed in the documentary and states that they had been asked, by the government, to develop reasons other than economic, that would justify Arrow cancellation; i.e., operational reasons. He said "We just couldn't do it!"

SECRET

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CONCLUSIONS

Therefore I consider that the disadvantages far outweigh the advantages of continuing the CF105 programme. This conclusion has been reached after most thorough study of this problem by the Chiefs of Staff and myself; and the considerations can be summed up briefly as follows:

- (1) The decreasing threat may make this aircraft superfluous to requirements before it is completed.
- (2) The rapid progress in missile technology is producing ground-to-air missiles which are cheaper, more efficient and more economical to maintain than the manned aircraft. They can be fitted with nuclear warheads and they are possible of further development. I am convinced that the missile will provide more defence per dollar than the manned interceptor, and now that the range of the missile is reaching the range of the interceptor, the advantage appears to be all with the missile. The use of missiles will also save manpower and allow us to take over more U.S. establishments in Canada.

Costs

As I have pointed out, the cost of completing this development is exorbitant and there is no guarantee that these estimated costs will not increase. The acceptance of this programme would mean a budget of more than \$2 billion for the next three or four years. The Minister of Finance has stated that the strain which would be placed on the national budget by continuing this programme would be intolerable, which indicates that a \$2 billion budget may mean increased taxes.

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- (1) aircraft are required to operate continuously to keep the crews in shape; missiles do not require any operating costs but just maintenance and a few practice missiles.

Therefore economies can be expected in the operational and maintenance fields by the use of missiles.

- (4) There is some concern in the Defence Department that a continuation of the CF105 programme would not leave the programme flexible enough to allow for other urgent projects; such as re-arming of the Air Division, defence against ballistic missiles, development of submarines for anti-submarine work, and development of up-to-date equipment for the Army. A careful study which was made last autumn shows very clearly that there is no room in the present defence programme for major economies which would be required to carry out this programme. Therefore an increased budget must be anticipated if this development and production of the CF105 is to continue.

3. Nuclear Warheads

The abandonment or limitation of manned aircraft in the air defence system and more reliance being placed on ground-to-air missiles would bring about a necessity for arrangements to be made for the use of nuclear warheads for air defence. It is not possible to put a nuclear warhead on the Sparrow missile, and therefore the CF105 with Sparrow cannot be said to be the most modern air defence weapon available. However if more reliance is placed on the use of missiles, then arrangements will have to be made for the storage of nuclear warheads for the use of Canadian missile units in Canadian airspace.

Treasury board
i.e., Bankers.

A whopper. Avro doc's show they were developing a nuclear Sparrow, but immaterial anyway, 1956!!! Chiefs of Staff docs refer to planned adoption of the MB-1 missile, which was the nuclear Genie for the Arrow and F-106.

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If the pattern of past performances follows in the future, we can expect these costs to rise twenty-five to fifty per cent, especially in the electronic and missile part of this project. The adoption of a limited programme would still require all the overhead and additional facilities required for manned aircraft, such as:

Additional facilities on airfields	-	\$ 20 million
Supersonic Dromas	-	14 million
Flight (Training) Simulators	-	20 million.

(b) On the other hand, Appendix 'A' shows very clearly that a programme involving 100 aircraft purchased from the United States could be obtained at much less cost than completing the development of the CF105. It would then be possible to buy spares and replacement equipment from the United States as they are required; whereas if we complete the CF105 we will be required to provide estimated life-time spares as the factories would go out of production on completion of the order. It should be realized, in purchasing a fully developed U.S. aircraft, that the development has been completed and our orders would be tacked onto the end of the U.S. production run. All we would really pay for would be materials and labour costs, as overhead and development would already have been paid for in the U.S. order. Furthermore the United States produce a series of aircraft, which involves anywhere from 600 to 1000 aircraft, and therefore the prices can be much lower.

(c) Considerable savings can be made in the use of missiles instead of manned aircraft:

- (1) the numbers required to man a Bomarc battery are between 100 and 200, whereas a squadron of aircraft requires some 400 to 500.

done anyway, as all the airport inway, and other tuff that had been tacked on to the Arrow price per plane.

and others were watching the plane closely. They always assumed Avro would essentially go belly-up after any ACCE order was filed.

What, no PROFIT?? No using \$ to

Proven not true before this by CF-100 program at Avro and its engine program too. Subsequently proven wrong by experience.

PERSONAL statement not the views of the Chiefs of Staff.

4/6/14