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BOOK REVIEWS/COMPTEs RENDUS

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The CF 105 AVRO Arrow was unveiled at Malton outside Toronto on 4 October 1957, and ordered out of production on 20 February 1959. Those seventeen months, culminating in the cancellation and immediate and mysterious physical destruction of the six completed aircraft, had a visceral impact on many Canadians. The symbolic importance of the decision was even greater than the considerable tangible economic, technological and strategic consequences. For those who had a direct connection with the project something was lost along with the break-up of the company that was too hard to fully accept. This is illustrated by the persistent belief in a surviving Arrow. In doing research on the event, I have talked to a person who swears he has seen an intact CF-105 in a farmer's field between Toronto and Montreal from a train window, and another who spoke in detail of an underground movement of ex-AVRO employees who have located, here and there, various parts of the Arrow, and have rented a warehouse and assembled a team to reconstruct a complete aircraft.

It is ironic that the Arrow was rolled out on the same day that the Soviet Union launched its first Sputnik. We live in an age in which economic viability depends on technological capability, and national virility is demonstrated by peaks of technological performance. Tom Wolfe has vividly described the successful American response to the Soviet challenge in his recent best-seller about the Mercury Astronauts titled, *The Right Stuff*. What was so difficult for many to face about the cancellation of the Arrow programme was that the Canadian retreat from the field seemed to have demonstrated that this country did not have 'the right stuff.' The three non-fiction books reviewed here have appeared twenty years after the event. Anyone hoping to penetrate the complexities of the Arrow drama is working with a severe handicap -- the government files are closed to outside researchers under the 'thirty-year rule.' I spent two years in complex legal negotiations with the Department of Supply and Services attempting to develop an agreement for access to the relevant Arrow records that would provide reasonable protection to the government's perceived need for confidentiality and at the same time not transgress the principles of academic freedom. They fell apart at the last

moment because of what I feel was a fundamental conflict of interests. The liaison person who was to determine which files I could see was to be an historian for the Department of National Defence -- the only historian in Canada who has free access to such records during the thirty-year period. It is clearly not to the advantage of official historians to see mechanisms developed that would permit academic researchers to do the job.

It is with this imposed limitation in mind that these books must be judged. Whether full disclosure will result in more convincing explanations remains to be seen, but more detailed analysis of specific aspects of the event will have to await 1989 and after. All three books compile fresh facts and anecdotes, but nothing new of fundamental importance is added to the quite comprehensive chapter on the Arrow in Jon McLin's 1967 book, *Canada's Changing Defence Policy*, or material that has appeared in trade journals such as *Canadian Aviation*, or *Aviation Week and Space Technology*.

E. Kay Shaw, author of *There Never was an Arrow* was one of the 15,000 AVRO employees laid off on 'black Friday.' The first draft was written in the two months following the cancellation. After leaving AVRO, the author studied economics and political science at the University of Toronto. The addition of a framework of analysis drawing on the nationalist literature of the late sixties and early seventies, is the most apparent modification of the earlier draft. The book is rife with irritating errors: the Lacrosse and Honest John missiles are identified as the same, although they are two completely different systems (p. 137); the F-104 was not renamed Starfighter (p. 142) when purchased by Canada but rather was called that since it came out of the Lockheed 'Skunk Works' in the late forties; the Electra (p. 139) is an unsuccessful American turbo-prop airliner and I imagine that it's the English Electric Company's Lightning that is being referred to here. And this is just a sampling from a few pages.

Shaw's anger verges on the hysterical. The book goes beyond the conspiracy theory to present almost anyone whose interests were not wholly with the project as being malicious in their motives. Pearkes tells the Commons 'with great satisfaction' (p. 164) that no Arrows remain intact to try for the world speed record; 'Pearkes and O'Hurley talked of trotting all over the world, hat in hand, begging for a little work for poor Canada to do' (p. 183); 'But we scoff at "prestige" and humbly beg the Americans to give us a few crumbs from their huge defence larder, since we have none of our own' (pp. 175-6). This book is most interesting as a cathartic expression of the anger and bitterness felt by so many at the time.

Murray Peden is a Queen's Counsel, Chairman of the Manitoba Securities Commission and was an RCAF flyer during the last war. Although his legal training may account for the more subdued style of his *Fall of an Arrow*, like Shaw, Peden brings an adversarial approach to the discussion. Blair

Fraser's infamous anti-Arrow editorial in the 25 October 1958 *Maclean's* was too much for the old soldier: 'Fraser had never served in the armed forces himself (he was 30 years of age in 1939), having spent the years of World War II in Montreal and Ottawa writing about it.' Peden, presuming a sympathetic readership, does not expend too much energy attempting to establish the perfidy of the anti-Arrow forces.

The development and evolution of the specifications and step-by-step description of the solution of technical problems have been lovingly and effectively reassembled. What little socio-political or economic analysis there is, is dropped into the text like an aircraft component being inserted into the main frame on a production line. Nevertheless, Peden renders a real service to future historians by assembling a detailed account of the physical creation of this beautiful technological device. The book is lavishly illustrated with about fifty photos and drawings of the Arrow. Unfortunately, the text is poorly referenced. Definitely, this is a book by and for aficionados of things military.

James Dow, an ex-Armed Forces pilot who now teaches aviation and flight at Seneca College, has produced the most satisfactory of the three books. Although titled simply *The Arrow*, it could more appropriately be called *AVRO*. It is, in fact, a company history, with the section dealing specifically with the Arrow amounting to a sixty-seven page essay. But perhaps the fall of the Arrow is best explained by the rise of the company - from a one-dollar (literally) war-surplus factory in 1948 to, by some accounts, the largest single employer in Canada by 1959. Created by C.D. Howe fiat, its higher management staffed Liberal-appointed ex-civil servants, and capitalized by a steady stream of government contracts, the Hawker Siddeley group was acquiring companies - such as Dominion Steel, Canadian Car, Canadian Steel Wheel - at a staggering rate. This commercial invention of the 'government party' was unlikely to find enthusiastic allies in a Diefenbaker cabinet. Dow raises all the right questions: the lack of a clear strategic rationale for the Canadian military, the weaknesses of cost-control mechanism and the management structure both within AVRO and the Air Force, and a glancing reference to the most important issue -- the implications of the lack of an industrial or a technology policy. Unfortunately, in all these cases, little or no reference is made to the substantial secondary literature available, and as such, his analysis is anecdotal and skimpy. This is a short book, presumably a function of the costs of publishing nowadays. Nevertheless, it is perhaps about as good a book as can be expected at this point in time, given the unavailability of so much of the records.

The Arrow experience may have many lessons for Canadians. Unfortunately they cannot be effectively learned. This is a particularly vital subject for a whole range of scholars: historians of science and technology; researchers interested in the economics of research and development and the problems

of the management of R & D; military historians and analysts. But such rigorous examinations cannot yet be undertaken and we are doomed to relative superficiality. As such, the quality of the 'feed-back' into the governmental and industrial structure is less than satisfactory. Clearly the recent exercise in choosing a New Fighter Aircraft demonstrated an effort at upgrading the decision-making process. Yet indications are that the time-lag imposed by current secrecy practices will mean that we will have to wait thirty years for historians to discover that little had been learned from the Arrow debacle of, by then, a half-century past.

Finally, a word on the first book published on the Arrow. Robert R. Robinson's *Scrap Arrow: A Novel* is a self-published effort by an ex-AVRO 'PR' man. Robinson includes the expected dollops of sex, although, like the subject of the book, they tend to terminate abruptly at the moment of greatest promise. For those who might want exposure to the Arrow story as light bedtime fare, this is the book for them. As yet, I haven't heard of any offers for movie rights, but, of course, because of the destruction of the airframes, this would present a real challenge for the special-effects crew.

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