

## John Ainslie

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**From:** brian.burnell. [brian.burnell@btinternet.com]  
**Sent:** 11 January 2008 00:26  
**To:** John Ainslie  
**Subject:** Re: British nuclear weapons

Hi John, nice to hear from you. And so many questions!

Feel free to use material from my website, subject to the usual conventions about attribution. Its what the site is for, - a student guide. Nuclear history is an increasingly popular course choice.

WE.177 replacement was on the cards at various times and there are a number of declassified sources in the PRO about TASM and other options. It isn't at the forefront of my current research tho'. So many other things to do. But I do have plans to write an account eventually. Much of what we do know emerged as a result of underground tests for the Chevaline and Trident warheads.

Not commonly known is that the three tests that followed the Banon/Fallon pair were for a new small, lighter, superhardened warhead intended for a very high reentry speed RV. It was intended as an alternate to the slower Chevaline RV, and supposedly immune to terminal ABM defences, which Chevaline was vulnerable to. As with other warhead development, its pretty certain that these warhead tests were 'part of a family' of warheads based on a single basic design. As was Cleo, Katie, Katie A, triggers for the first Polaris warhead, Blue Water, and Skybolt.

The Banon/Fallon UGTs were the basis of the Harriet warhead used as the Chevaline fission trigger. The Chevaline fusion secondary was recycled from the first Polaris warhead, and was originally the Skybolt secondary, known as RE.179. Before it was angicised it was the US W-59. The new Harriet fission trigger was needed because the UK discovered belatedly that the earlier trigger was vulnerable to Soviet exo-atmo ABM detonations. That hadn't mattered with the US Polaris, because they were retired before those Soviet ABMs were deployed.

Its probably quite impossible to unscramble the TASM warhead from this history. But I'll give it a go eventually. Meanwhile, you might get some useful stuff from Dr Richard Moore, a Visiting Fellow at Southampton University. I'd advise not to overdo the CND bit tho'. Rich is an academic primarily. He keeps his politics in another compartment. He doesn't know I was Secretary of Soton CND in the 80's. It works better that way. His email is richard.moore@netcourrier.com

The W-68. I could fill a book on this. Yes the UK had access to the design data. It was a very serious contender as an alternate to Chevaline, and would have been manufactured in the UK to fit the US RV purchased in the US. There were two differing schools of thought on ABM penetration. The Brits (who could afford only a few subs) opted for two slow-speed RVs with lots of decoys. The decoys were to keep the ABM defence from knowing which were the two real warheads. The US opted for a 'saturation' strategy. Lots of warheads on a bus that would saturate the ABM defences, which were strictly limited by treaty. The US RVs differed in one other important way. They reentered at a much higher speed, intended to make them immune to sprint-type terminal defences. So they didn't need decoys. The Americans considered this the best option and advised the Brits to buy their RVs and manufacture the W-68 in the UK. This option was known by several project names, The Hybrid, Stag, The Washington Variants (of which there were four). The UK chose the Chevaline option knowing that it was not the best technical or military solution, but because they wanted to retain a warhead and RV design capability in the UK. So Chevaline was chosen against the advice of the Navy and all senior military advisors. They admit that now. The UK military wanted the W-68 and Poseidon on purely technical grounds. They also wanted to keep in step (equipmentwise) with the US. It was costing the earth to keep the older Polaris operational because the US Navy had phased them out and discarded their

Also, is there any reference to Britain having access to the design of the US W68 (Poseidon) warhead. A modified version of the W68 primary was used for W89. W89 is probably the basis for the new US RRW design.

Best wishes

John

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