

Danny Nowlan

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BSc, BEng (Aero), MEng (Aero) (USyd)

Foreign Affairs, Defence and Trade Committee  
Joint Strike Fighter Inquiry  
Department of the Senate  
PO Box 6100  
Parliament House  
**Canberra ACT 2600**

**RE:THE PLANNED ACQUISITION OF THE F-35 JOINT STRIKE FIGHTER**

Dear Chairman and Committee Members,

Please find enclosed a secondary submission. This is a compliment to my original submission that was submitted on the 21st of December 2015. It addresses some of the points raised by further submissions that have been posted on the inquiry website.

I commend this to the committee.

Best Regards

Danny Nowlan  
BSc, BEng (Aero), MEng (Aero) (USyd)

## **Superiority - A cautionary tale of defence acquisition and technological hubris**

Now that the dust has settled on the Senate inquiry into the F-35 a number of key narratives have appeared in justifying the selection of the F-35. What is quite striking is they bear a striking similarity to a Dystopian short science fiction story called Superiority written by Arthur C Clarke. Written in 1953 it bares an uncanny resemblance to the trajectory of the JSF program and serves as a cautionary tale about defence acquisition in the 21st century and having utter faith in your technological omnipotence.

The story revolves around a debrief of a former commander setting the record straight while awaiting trial after his military forces had been soundly defeated. On paper the battle should have been a fait accompli. They had advantages in numbers and their technology and science was significantly more advanced than their adversaries. To say that things did not go to plan is an understatement.

What brought their undoing was complete faith that their technology would solve all their problems. This was aided and abetted without the appropriate validation and testing and an indifference to what their adversaries was doing. The further their defeats the more belligerent their science department became. This ultimately sowed the seeds for their ultimate defeat.

Our story starts after the allies have a narrow victory against their opponents. Shaken the military leadership are looking for answers. A new head of the science department Professor General Norden claims that their current technology is exhausted. This particular quote from the story is chilling,

"What we want are new weapons - weapons totally different from any that have been employed before. Such weapons can be made: it will take time,... I believe, in fact, that a revolution in warfare may soon be upon us."

Contrast this to what was stated by former head of the RAAF Air Marshal Brown -

"The F-35 is perhaps the greatest opportunity for evolutionary change the RAAF has been presented. Were introducing a revolutionary capability" . Similar quotes have been stated by F-35 advocates in the past.

Enthused the military starts work on revolutionary new weapons. But no sooner had they started then the problems emerged. The first was a super weapon called the sphere of destruction. It had great potential but the problem was all production of current torpedos had to stop because they didn't have the necessary range. Contrast this to the decision to sole source the next generation of fighter aircraft to the F-35 and the decision to terminate production of any alternatives including the F-22 Raptor.

Meanwhile their adversaries didn't get the memo and kept producing and evolving their existing technologies. The next time they meet on the battlefield their

adversaries had the allied forces outnumbered because they couldn't field enough torpedos and spheres of destruction. The result was a tactical defeat for the allies because they didn't have enough of their weapons to go around. One can't help but think of the rising cost of the F-35 and the Russian's continuing to evolve the Flanker series of aircraft that has led to the Su-35S Flanker,

<http://nationalinterest.org/feature/the-russian-bear-roars-the-sky-beware-the-deadly-su-35-11799>

Caught of guard by this defeat, Norden in particular promised they could right the situation through better technology. The next evolution was the Battle Analyser a computer so intelligent it could out think it's opponent. One can not help but draw parallels with this,

"Underpinning the F-35's unrivalled capabilities is more than 8 million lines of software code – more than four times the amount of the world's first 5th generation fighter, the F-22 Raptor. From flight controls to fusing together the F-35's sensor data to form a clear and comprehensive picture of the battlespace" - Lockheed Martin.

Suffice to say when this was employed things did not go to plan. There weren't enough operators to go around, the computer itself proved unreliable and ultimately it needed to be carried in a fragile spaceliner in order for it to work. The enemy recognised this and changed their tactics accordingly and used their superior numbers to eliminate the Battle analyser.

This is eerily similar to the software problems that have been reported by the Pentagon's DOT&E reports into the F-35. In particular the lack of cyber security testing and the lack of a valid verification simulation to ensure this will work as advertised. What is also a disturbing parallel is the F-35's susceptibility to battle damage as also reported in the Pentagon's DOT& E reports.

As a last ditch move the General Norden and his team of scientist invented a cloaking device. It would make them invisible until within range and then certain victory would be guaranteed by appearing out of no where and catching their adversaries off guard. Again initial testing showed this was viable. The parallels to the F-35 are again disturbingly accurate. In an interview given by the manager of the JSF, JPO Lt Gen Chris Bogdan to ABC's radio national on the 6th of March 2016 he stated,

"Here's what I will tell you; there is not an airplane in the world today anywhere that if put up against an F-35, in an air-to-air environment we will see them first, shoot them first, and kill them first. Period dot."

When this was employed in practice things went horribly wrong. Firstly the cloaking device called the field led to ships winding up in the wrong place and a break down of communications. The enemy realised this and moved in for the kill and achieved victory. One has to wonder when the JSF JPO will be forced to test the F-35 against a genuine peer threat by pitting a four ship flight of F-35's against a four ship flight of F-22's in a Beyond Visual Range and a Within Visual range air combat exercise.

Ultimately the cause of the allied defeat in the story Superiority was a belief that technological superiority would usurp everything else. However what lead to their defeat was a lack of appropriate testing, an indifference to the data and continued belligerence that science and technology would solve all their problems despite overwhelming evidence their plan was not working. Again all parallels with what has happened with the F-35. Despite all the statements about how good the F-35 is we are 15 years into the program and not a single F-35 is ready for combat.

In closing I would encourage the readers of this submission to view the F-35 program through the prism of the short story Superiority. The link to the story is here,

[http://www.mayofamily.com/RLM/txt\\_Clarke\\_Superiority.html](http://www.mayofamily.com/RLM/txt_Clarke_Superiority.html)

Also an excellent summary is given by aviation journalist Bill Sweetman here,

<http://aviationweek.com/defense/opinion-timeless-insight-why-military-programs-go-wrong?NL=AW-18>

It is essential reading for defence acquisition in the 21st century and the parallels between this and the JSF program speak for themselves.