



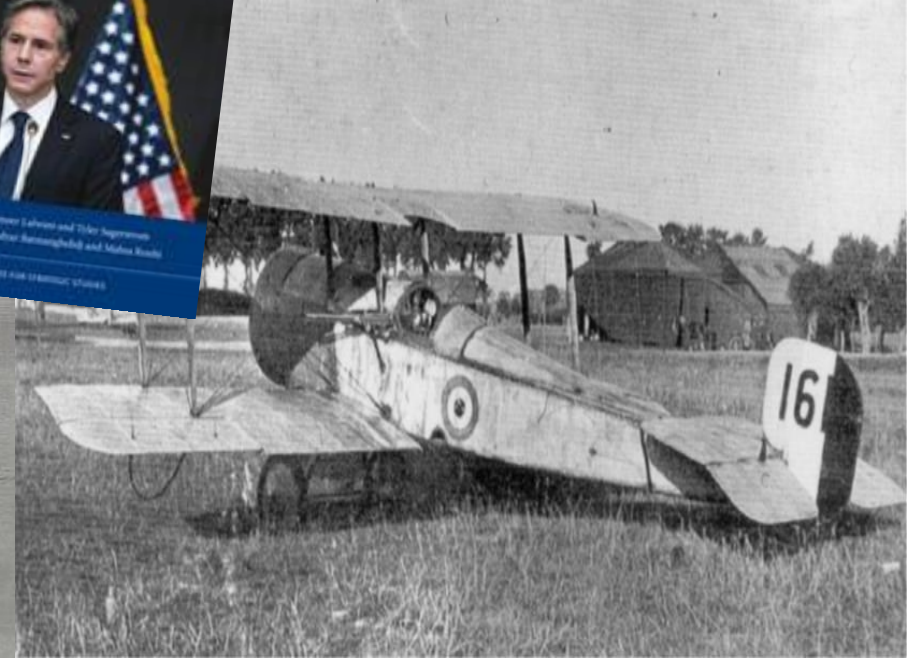
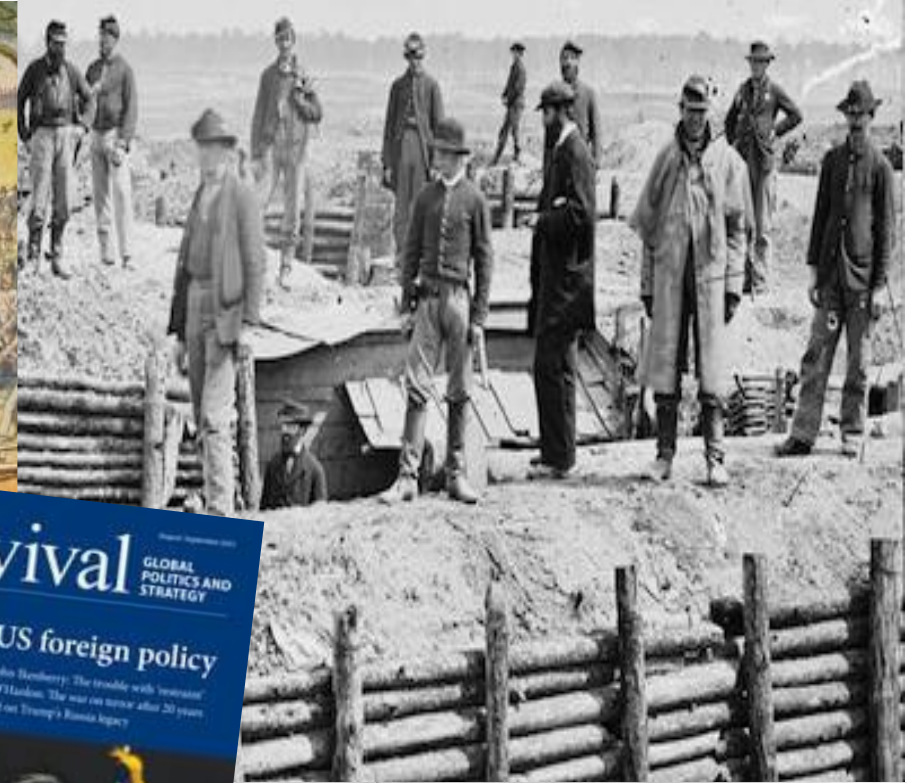
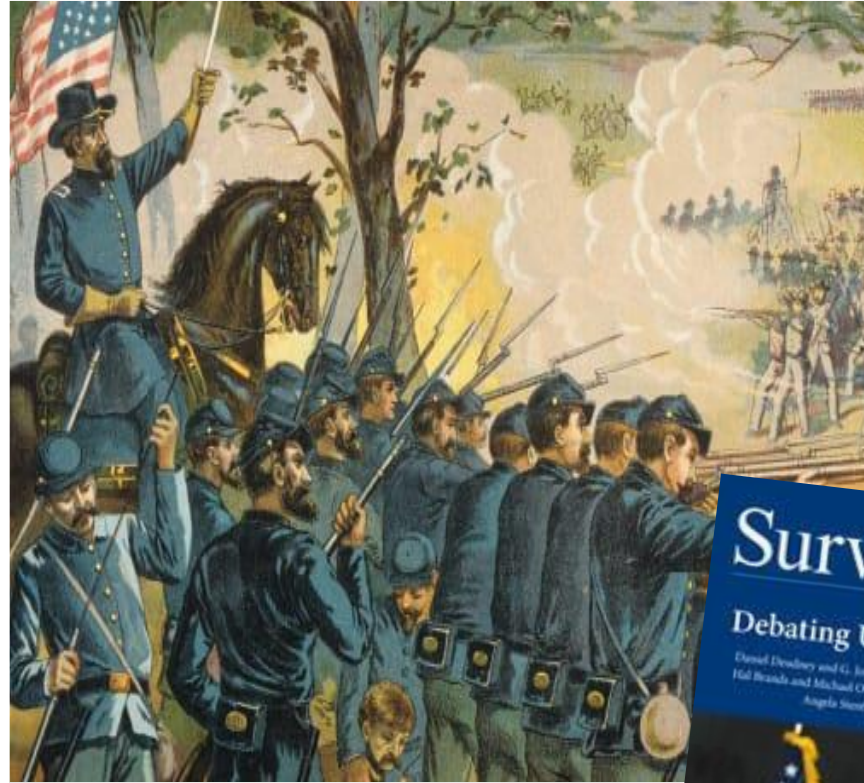
FFI Norwegian Defence
Research Establishment

Multi-domain operations, emerging military technology and the future of manoeuvre warfare

Dr. Michael Mayer
NATO STO ORA Conference
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Rationale

- Foresight analysis: Implications of future military technology
- Developing appropriate capabilities and concepts
- F.S. Gady, «Manoeuvre vs Attrition in US Military Operations» *Survival* (July 2021)



Technology and Future Warfare

- Ubiquitous sensors
- Networked, intelligent, autonomous systems
- Multifaceted and accelerated decision-making
- Emphasis on new(er) warfighting domains



Offense versus Defense

- Technology incentivise one form over another
- «Cult of the offensive» meets trench warfare
- Hammes & Johnson «defence ascendant» vs Biddle scepticism



Manoeuvre Warfare

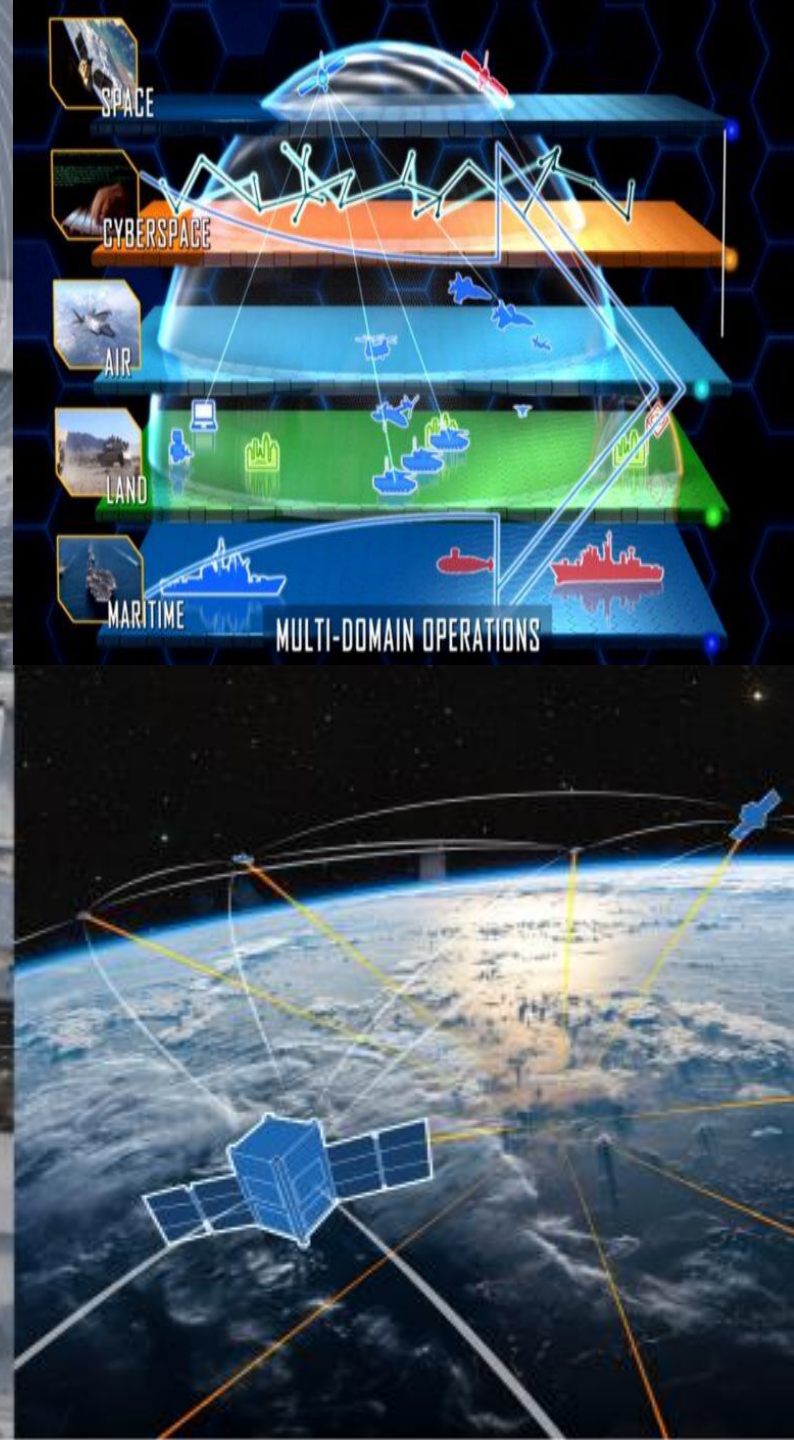
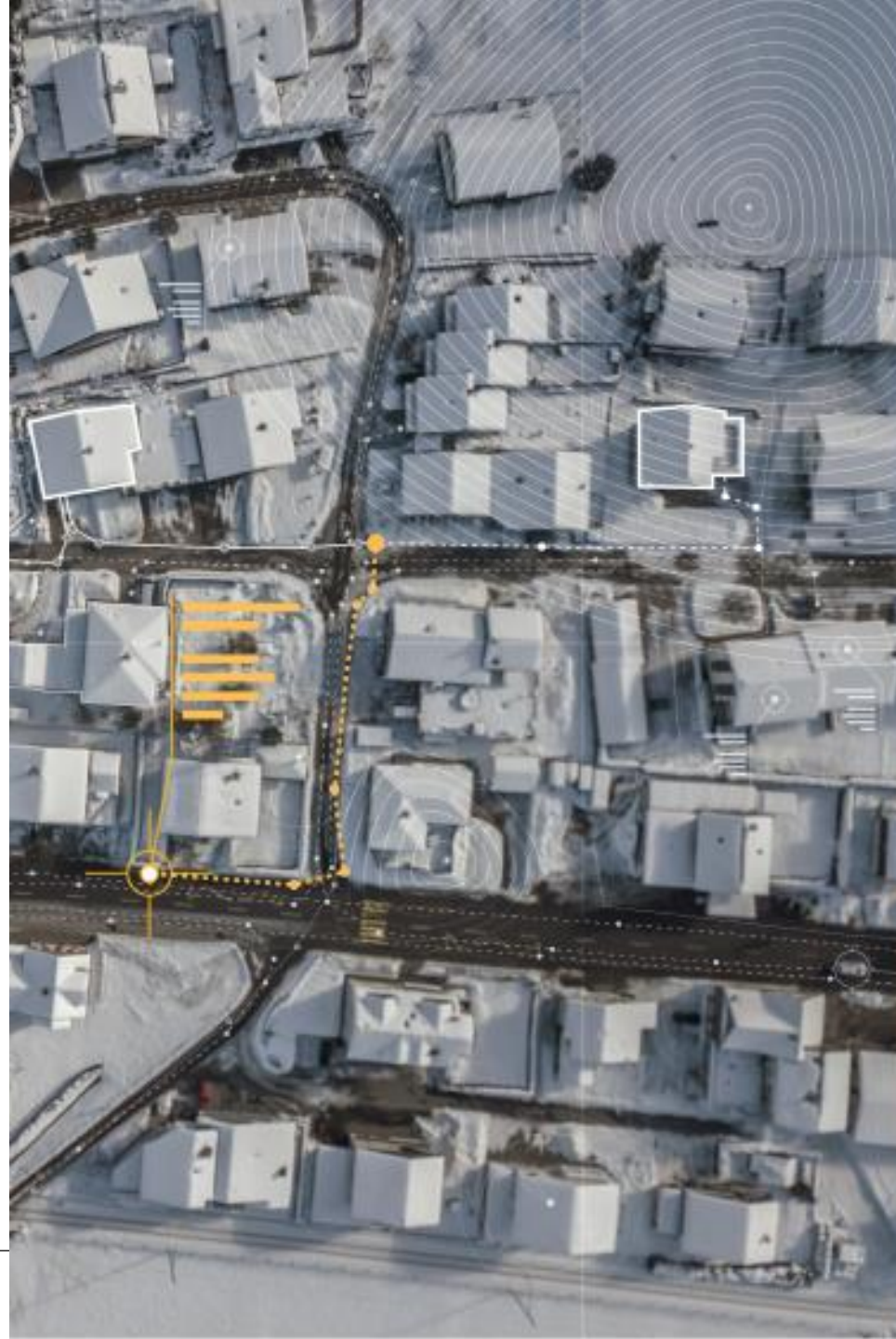
- «Shattering cohesion and will to fight»
- Manoeuvre, attrition and positional warfare
- Strategic, operational and tactical manoeuvre
- Everything important, but which function gets *most emphasis*



Figure: Amos Fox, 'A Solution Looking for a Problem: Illuminating Misconceptions in Maneuver Warfare Doctrine', *Armor*, Fall 2017.

Multi-domain Operations

- Work in progress
- Countering long-range sensors and precision fires (A2/AD)
- Coordination and synchronisation across domains at «speed of relevance»
- Data-centric concept with JADC2 as the glue



MDO in the FOE

- *Tactical*: Asymmetric mobility, visibility and surprise in contested environments
- Entrenchment, camouflage, dispersion, and mobility
- *Operational*: Planning, massing, tempo and dilemmas
- *Strategic*: Conflict phases (manoeuvre to attrition), escalation risks, proxy wars



Conclusions

- Preparing for both manoeuvre and attrition
- Offense-defence and *fait accompli* warning
- Relevance: Force structure planning, acquisitions and war-fighting doctrine





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into an effective defence**

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