Notes SCI-291 workshop in Cologne, June 6ᵗʰ 2016

Maarten Hogervorst and Hans Kariis

Participants:

Kent Anderson (KA)	**Bin Lee (BL)**	**Jiri Plachy (JP)**	**Josef Huber (JH)**
Christoph Benker (CB)	**Karin Idla (KI)**	**Marek Strandberg (MS)**	**Jerome Fleuriet (JF)**
Patrick Dunau (PD)	**Karin Stein (KS)**	**Hans Kariis (HK)**	**Maarten Hogervorst (MH)**
Klaus-Peter Wrbas (KW)	**E.J. (Eef) van Leeuwen**	**C.A.E.J (Cedric) Hendrix**	**Pascal Baard, Patrick Engelen**
Mikael Wendt	**Pasi Salonen**	R M Anderson	Alexander Dietel
Ola Dickman	**Barney Pearson**	**Dietze**	

1. Word of welcome by LtC KP Wrbas + introduction into Amt für Heeresentwicklung

2. Karin Stein welcomes everybody to the workshop

3. Presentation by Hans Kariis on SCI-287 (ppt in appendix), including: overview NATO work on camouflage, results from SCI-230 (on adaptive camouflage assessment: observer trial, photo simulation experiment, computerized tools, e.g. Terrtex, Camouval, Camaeleon). Presentation of SCI-287 focus and goals, explanation of the 'ladder model' framework, ending in the connection to the workshop: in order to incorporate operational context in the evaluation we need relevant and realistic scenarios.

4. Presentation by Karin Stein on SCI-295 (ppt in appendix). Methods for measuring natural backgrounds. Focus on SWIR and hyperspectral sensors, range: 400 nm – 2500 nm. Field trials in 2017 (summer) and 2018 (winter) in Storkow.

5. Presentation by Hr. Dietze: on Storkow facility. CCD training base. Facility includes 2 towers, helicopter facilities, decoys (incl the Standcam), air inflatable decoys (which can be dropped from an airplane), research into re-camouflage paints, camouflage nets, mobile multispectral camouflage kits.

6. Presentation by Adj. van Leeuwen from Netherlands Engineer Training School, with examples of camouflage in Woodland, Arctic, Desert, Personal Camouflage (face paint, natural leaves, ghillie suits).

7. Presentation by LtC Jan Lundberg (SWE Armed Forces), showing a model framework to analyze the effect of different capabilities on combat effectiveness. At highest level: C2, Mobility, Endurance, Protection, Fire Power, Intelligence. At lower levels more detailed functions. Example: how will the addition of UAVs affect combat efficiency?

8. Presentation by Mr. P. Salonen on Finnish Concepts of Camouflage (see ppt). Mostly using natural

materials (good performance in hyperspectral, visual to SWIR reflection). Winter camouflage, static camo (incl 2-sided, e.g. woodland-urban/rocky), combinations of nets with natural materials.

9. Presentation by Kent Anderson, showing an example scenario to start the Workshop discussion (see ppt). Q: alternative scenarios? UK: 'hide locations' scenario could be considered (setting up and maintaining an observation post). This could be part of the end scenario.

10. Discussion on scenario and vignettes

Issues discussed:

- Initial locations: this choice is crucial for the outcome. This determines the space one can use to maneuver.

- Mission statement is also crucial and should be well defined

- Blocks, e.g. minefields setting up killing zones, concertinas. Blocks need to be camouflaged.

- Sensor at disposal of the Red and Blue teams (e.g. for recce)

- Sensors are not used in critical situations to assess the own camouflage situation. This has to be done in training.

- Size of the battle units: most realistic and feasible: 2 Red companies vs 1 Blue company.

- Use deception when detected. When detected by the Red team, the Red forces will change the route or align in order to be able to use more force.

- During various stages before 'notice to move' camouflage will change (30, 15, 5 min, immediate -> state of readiness).

**** LUNCH ****

Continued discussions on:

- Criteria for success: i) fire position, ii) pre-warning iii) measures to slow down

- Good strategy is to try to outflank the enemy (fire the first shot)

- The area has to be entered without being detected by Red.

- It is good to have MANY options in order to be adaptable to different outcomes, incl. use of deception. Deception: use of decoys, but also real activity or use of smoke.

- Threats: to be detected, that the enemy knows your size, etc. So, enemy reconnaissance is the main threat. UAV, SAT, SF

- Timing: 2hs is considered unrealistic. In that case blue has no time to prepare or make (optimal) use of camouflage. More realistic is a period of 12h.

VIGNETTE 1: Recce deployment area

Recce team explores the area before you move in. Mechanized mission (Forward Line Own Troups, e.g. 2 Infantry Fighting Vehicles), using the terrain cover. This can be quite slow to prevent detection. An observation post is to be established, e.g. using a Fennek or dismounted team. Various persons have their

own areas of responsibility including their own assets. Long range recce information comes from intel. Important to remain undetected given the asymmetry between the firing range of the tanks and the infantry. (Note: information on how this kind of delay operation is carried out can be found in NATO documents). The main sensors are: Image Intensifiers, Thermal, EO, eye and ear (especially at night). Radar of the red forces detects movements -> movements are performed: slow-fast-slow, etc. Persons are not easily detected by field radar. Soldiers try to use the wood lines. Main threat comes from thermal sensors. Another consideration is to move the soldiers not too far ahead (e.g. 1 km) in order to bring them back so they can be used at a later as well.

- Terrain is very important. For instance, one tries to own the higher grounds. Also, use natural barriers to try to channel Red forces.

- Proposed: 2 delay lines, such that the tanks can be attacked from the flanks. Use buildings and natural cover. Use shooting channels between the buildings. Put the mechanized units in the forests (upper-left in the map).

- Critical: i) not being observed while ii) being able to observe the enemy.

- Threat from UAVs

- After firing: change position (approx. in 1 min) and shoot again

- Use deception, e.g. decoys to divert artillery fire.

- Reds may not immediately know what is going on after the firing. Look for cover, use smoke, also in irrelevant positions.

- Blue: spread out (disperse) to keep losses low.

Q: is camouflage relevant when moving? Yes, always. Basis is supplied by normal camouflage. Additional camouflage will make the difference. KW: camouflage makes it more difficult to track, also by automatic systems. But JF: after firing contrast will be high. KW: but when only the turret is hot it will still be more difficult to hit a camouflaged target than an uncamouflaged target. Difficult to hit the centre of mass.

> Note: in this scenario dismounted soldiers (plus sentries/guards/observers) play an important role and cannot be discarded.

11. HK summarizes the discussion, see ppt, and poses the idea of organizing a workshop in 2 years to look into the results of the SCI. Another idea is to test the outcome in a field trial in a follow up task group. HK concludes the workshop by stating that it helped SCI-287 and SCI-295 to obtain the information we sought for. The next meeting of SCI-287 will be held on Wednesday at the Future Forces Forum in Prague in a joint meeting with SCI-295.