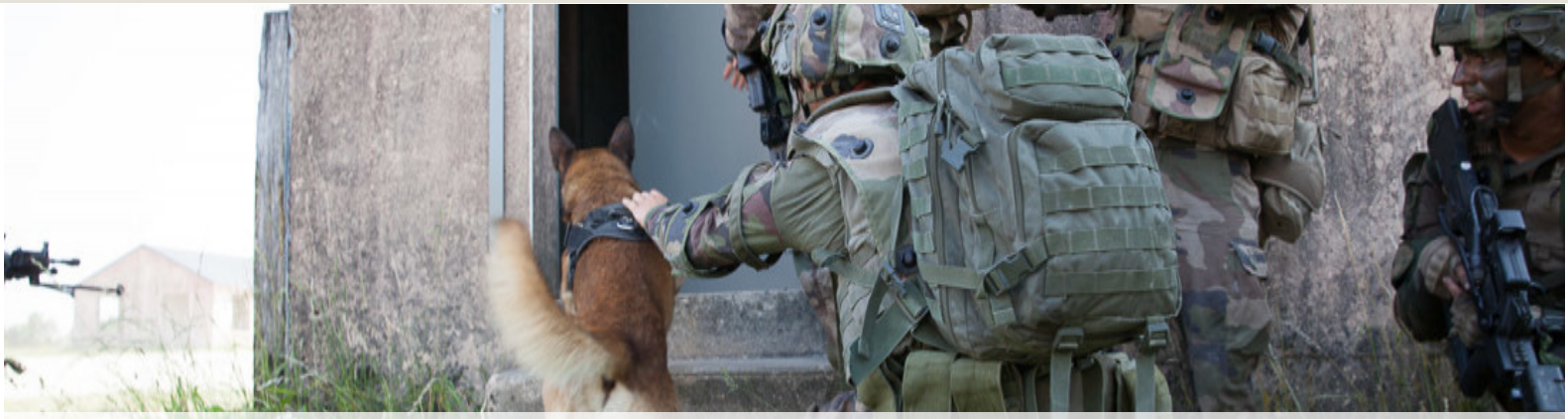

Real and simulated training: an essential complement for armies

military-Earth thinking notebook

le Chef de bataillon Nicolas PIERSON

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In this period of budgetary constraints, the author very opportunely shows us the relevance of the complementarity between training in the field and training on simulation tools.

Analysis of recent operations shows that the ability to sustain our troops at all times and in all locations is a critical factor in mission success. Yet, in a particularly constrained budgetary context, there is a growing temptation to make greater use of simulation, or even to replace field training with simulation. In training and in training, whether in units, training centres or schools, the question of how much room there should be for simulation is of concern to many leaders and trainers.

In this article, it is understood that real training includes field exercises with all human and material resources. Virtual or simulated training includes exercises carried out with simulated means and with the help of simulators.

The purpose of this article is to demonstrate that, without **replacing real training, simulation is an essential tool for armies**.

Training in the field: a must

Today, one cannot conceive of training a unit without carrying out exercises in the field and in conditions as close as possible to reality.

In contrast to a simulated exercise, a field exercise makes it possible to reproduce the living conditions of the soldier in operation. Until very recently, Operation Serval in Mali, where units were placed in exceptionally harsh conditions, clearly demonstrated the

usefulness of training and, in particular, hardening. This level of hardening cannot nowadays be achieved through simulation.

Real training allows a unit to forge cohesion.

Similarly, live training allows a unit to build the cohesion that is essential for mission **success**. This cohesion, which can only come about through effort and suffering, enables a unit to absorb the shocks, sometimes violent, when comrades are injured or killed on operations. Cohesion will not be created as significantly in a simulator.

Finally, only the confrontation with reality allows us to fully grasp the frictions of war. Orientation difficulties, weather, breakdowns, human weaknesses, although very present and sometimes decisive, cannot be simulated perfectly, whereas a field exercise will always experience these types of adhesions. Difficulties in the coordination of actions, for identification or for the circulation of information, are particularly difficult to create in a simulator.

Field training is the only way to strengthen hardiness, create cohesion and restore friction.

Simulation as a complement to real training

Simulation complements real training and is part of the various phases of operational preparation.

Simulation generates significant gains. These gains are of course financial: fuel, travel expenses. Simulation therefore saves resources and potential. It also saves time by speeding up the simulator clock. It is thus possible to reproduce long operations such as counter-rebellion actions. These time savings are particularly interesting for units that have to train within very tight deadlines.

In addition, the simulation allows a unit to be acquired by the drill a threshold level offering the possibility of carrying out subsequent live exercises in complete safety and with greater tactical interest. This is the case of a squadron of Leclerc tanks which, after performing exercises on a simulator such as Romulus [1], can train effectively in the field or in a training centre. Simulation therefore allows a unit to prepare for a real exercise and avoid significant loss of time and money.

Last but not least, the simulation allows for "re-game**"**, debriefing and after action analysis under optimal conditions. The Janus [2] "re-game", for example, makes the film unfold the action carried out and, in a few minutes and without comments, highlights a large number of lessons to be learned. The quality of these debriefings is hardly comparable to that of debriefings of actual exercises. The lessons learned by the trainer or leader are rich and concrete. He can thus instantly compare the real situation to that of the simulator and identify the gaps or the player's fragmented and off-beat vision.

By the gains it generates, by the repetitions and the "re-games" it allows, the simulation perfectly completes the real training without replacing it.

The future of simulation

As the world continues its digital revolution, simulation is expected to become even more important in the future.

Indirectly, simulation has an interest in building loyalty. Indeed, simulation, when done well, is attractive to the younger generations who have been immersed in technology and computers since their early childhood. This is particularly the case with immersive simulation. This impact on the attractiveness of the military profession is not negligible when we know the difficulties armies have in recruiting.

Today, effective on the preparation of a single level of command and with a single location, simulation should make it possible to train several levels **simultaneously in different locations**. The interconnection, and why not remotely, of simulators would easily offer this possibility. This interconnection is increasingly credible due to the high data rates of the computer links. One can thus imagine units, and why not, at different levels of command, training respectively in their quarters, commanded by a staff deployed and manoeuvring in the field.

Moreover, today, the use of simulation during **an operation seems to be** widely conceivable. Indeed, during the development of the manoeuvre, a simulated test or wargaming [3] would help a staff and its leader to make the best possible decision. This process is already used succinctly in MEDO [4] when comparing friendly and enemy modes of action. One can also imagine that an application installed on future information systems offers the possibility for subordinates to repeat the action during a simulated rehearsal [5]. The Army's SCORPION programme, which brings together all the resources of the Joint Battle Group, should include a simulation component. An operator, a gunner, a group, a command team or a staff could thus train in the neighbourhood but also in operations during quieter periods. The case of amphibious operations and the transit phase preceding disembarkation are a good illustration of this.

After a real operation, the simulation could be used to reproduce the manoeuvre by generating a "film" from which even more lessons could be learned. By relying in part on NEB geolocation data [6], it would offer the various players the possibility of detecting the origin of success or failure and of better understanding the errors committed. Distributed in units, schools and training centres, this "film" could also be used as an educational tool. This method is already widely used by the US Army.

Simulation also brings a certain added value

Finally, if real training seems to be indispensable for the preparation of an operation, simulation brings in addition a certain added value. It is likely that this added value will increase in the future and that simulation will become an indispensable tool, including during and after operations. The challenges will then be the connection between the different simulators, the modelling of realistic automata, the integration into the NEB and the protection of these systems from cyber attacks.

1] Romulus is a tactical simulator for cavalry platoons and squadrons. It is used in schools and regiments.

[2] Janus is a tactical simulator for brigade and regimental staffs to prepare themselves. It is mainly used in schools.

3] Term used by the Anglo-Saxons to designate the confrontation of enemy and friendly modes of action.

4] The operational decision making method allows a staff to design a manoeuvre by assisting the leader in making a decision.

5] Literally, rehearsal. An action usually conducted on a sandbox so that subordinates can prepare and repeat an action.

6] Battlespace digitization encompasses all information and communication systems.

Saint-cyrien of the promotion of the "Bicentenary of Saint Cyr" (1999-2002), Battalion Commander PIERSON chose the Engineer at his school graduation and then the 6th Engineer Regiment where he served for seven years. Assigned then as an instructor at the military schools of Saumur, he was brought to participate in numerous exercises on the Janus and Romulus simulators.

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