機動力、火力、震撼力:淺談步、戰協同之歷史與展望
Mobility, Shock and Firepower for Light Armor-Infantry Operations: Past, Present and Future

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提要

一、作者史考特 · 迪達姆斯上尉(CPT S. Scott Diddams)以美軍訓練政策的重大調整，概述「機動保護火力計畫(MPF)」執行作戰評估的規劃，以及未來步兵旅戰鬥隊(IBCTs)使用的輕型戰車型式。

二、藉由觀察第二次世界大戰盟軍在歐洲、非洲的作戰行動、美軍對加拿大的突擊任務，以及聯合作戰訓練中心演訓，分析戰史紀錄與演訓狀況，表達裝甲部隊對整體行動的重要性。

三、文中以「機動保護火力計畫(MPF)」為主體，以實際戰役、演訓驗證說明步兵特遣隊未來作戰編組趨勢，並提供步兵指揮官在運用裝甲部隊上，必須堅守的原則，與應具備的思考模式。

關鍵詞:機動保護火力計畫(MPF)、雷射接戰系統(MILES)、**火炬行動(Operation Torch)**、齊格菲防線(Siegfried Line)、衝擊行動(Operation Punch)、正義之師行軍事行動(Operation Just Cause)

壹、前言

“Armor in the future must fly, just as all other means of war must fly. Possessing good cross-country mobility, and gunned to destroy any earthbound vehicle, the tank will play the decisive role in the coming battles of the airheads.” -MG James M. Gavin

「裝甲部隊未來一定要具備飛行能力，就像所有戰爭手段，朝向飛行的方向發展。戰車擁有良好的越野機動性和摧毀任何地面裝備的能力，裝甲部隊在即將到來的戰鬥中，將在敵人的領土上扮演重要的角色，並發揮決定性作用」。詹姆斯·蓋文少校

The U.S. Army has begun a major shift in training to focus on countering near-peer, well-equipped and well-funded adversaries fighting with an assortment of mechanized-infantry and armored platforms far more capable than the typical insurgency. This means a transition from attempting to win a low-tempo “hearts-and-minds” game to winning a high-tempo, large-scale, combined-arms fight against a smarter, modern enemy.

美國陸軍為適應戰場上面對作戰能力遠比典型叛亂份子強的各種機械化步兵和裝甲車輛平台，在訓練上做出重大調整，聚焦在打擊「近端威脅」、「裝備精良」及「資金雄厚」的對手。這意味著現代戰爭的戰鬥性質，已經從慢節奏贏得「民眾的情感支持」，進展到「節奏快」、「規模大」、「聯合武器對抗」的作戰環境。

This transition to better engage a differing mix of enemies reflects the nature of war itself. Tactics, techniques and procedures (TTPs) are constantly evolving as the enemy encounters our weapons’ effects, just as we upgrade our weapons and training to counter his advantages. This is especially true in our infantry brigade combat teams (IBCTs), which have limited resources to counter bunkers, tanks and other protected adversarial assets. In response to this deficiency, 82nd Airborne Division has begun experimenting with a mobile protected firepower (MPF) company to augment its light battalions.

前述訓練模式的轉變，適用於多種敵軍型態，並可更加貼近戰場實際景況。而戰術、科技和作戰程序(TTPs)也會在遭遇不同敵情，適時的調整及不斷演變，如同我們武器裝備的性能提升和訓練政策的轉變，以對抗敵軍的優勢。尤其是我們的步兵旅戰鬥隊(IBCTs)，僅能以有限的火力與裝備，對抗敵軍掩體、戰車和其他裝甲防護部隊。針對火力不足的狀況，第82空降師也加入「機動保護火力計畫(MPF)」試驗，部署輕型戰車部隊，擴大營級編組、提升打擊火力。

The MPF platform promises to be a 30-ton tracked vehicle equipped with a 105mm direct-fire precision-weapon system. Currently, the role has been filled with U.S. Marine Corps’ light armored vehicles (LAV-25), equipped with the appropriate laser engagement system (Multiple Integrated Laser Engagement System [MILES]) to simulate MPF. The Army has chosen two prototypes to evaluate within 82nd. Airborne in 2021. The product of this and other evaluations will determine the platform of the proposed MPF units to be activated within the IBCTs in 2025.

「機動保護火力計畫(MPF)」作戰需求以30噸履帶式車輛為主，並裝配105

公厘直射火砲及精準射控系統。目前，以美國海軍陸戰隊輕型裝甲車(LAV-25)，配備適當的「雷射接戰系統(MILES)」，模擬「機動保護火力計畫(MPF)」執行作戰評估；另外陸軍選擇了兩個原型，規劃於2021年，由第82空降師進行作戰評估，「機動保護火力計畫」作戰評估將於2025年完成，並依評價成果決定步兵旅戰鬥隊(IBCTs)未來使用的輕型戰車型式。

圖1、第82空降師聯合作戰演訓

Figure 1. 82nd Airborne paratroopers integrate Armor vehicles to support combined-arms training. Infantry brigade combat teams (BCTs) soon will have organic light-armor mobile protected firepower (MPF) companies to provide them with more firepower to counter near-peer threats. *(Photo by SSG Jason Hull)*

第82空降師傘兵整合裝甲部隊，以支持聯合作戰訓練，步兵旅戰鬥隊(BCTs)即將執行「機動保護火力計畫(MPF)」部署排級以上輕裝甲車輛，為他們提供更多的火力，來應對近端威脅。(攝影者：傑森・赫爾上士)

資料來源：ARMOR Mounted Maneuver Journal Fall 2020, 第102頁

The concept of augmenting expeditionary, light-infantry organizations with armor isn't new. Examples include general headquarters (GHQ) tank battalions that were tasked to support light infantry in World War II and Korea, or 73rd Armor Regiment, which air-dropped Sheridan tanks into Panama. These and many more historical, doctrinal evolutions produced a plethora of lessons-learned on the subject of light tank-infantry integration. However, in 82nd Airborne Division, which has been without an armored component since 1996, many of these lessons have been lost or discarded. It is valuable, therefore, to examine history as the Infantry Branch develops plans for the future.

用裝甲防護來增強部隊遠征能力、輕型步兵組織的概念並不新鮮。例如在第二次世界大戰和韓戰期間，美軍總部戰車營負責支援步兵師的任務(美軍在第二次世界大戰中，戰車營為獨立編制，依作戰需求由步兵、裝甲、空降師作戰

管制，當時也稱為總部【GHQ】戰車營)，第73裝甲團也在巴拿馬執行謝爾登輕戰車空投任務。這些戰役的紀錄、理論演變，累積大量關於輕型戰車與步兵聯合作戰的經驗教訓。然而，自1996年以來，第82空降師一直沒有部署裝甲部隊，許多作戰經驗已經被遺忘。因此，建議未來在步兵單位制定編裝計畫時，因重新審視戰役經驗，使其具備歷史價值。

This article will examine several relevant historical vignettes and then discuss lessons-learned and how they apply to the development of future light-armor doctrine, which should be of interest to Armor Branch leaders and Soldiers.

本文將藉由幾個戰役中的作戰經驗，探討未來輕裝甲理論的發展如何應用，對於裝甲兵科領導幹部和士兵，應該相當有幫助。

Operation Torch and development of tank-infantry tactics

貳、「火炬行動」機甲部隊作戰策略的發展

The Army published doctrine prior to the invasion of Africa that would be tested and developed throughout the duration of Operation Torch. Field Manual (FM) 7-5, Organization and Tactics of Infantry – The Rifle Battalion, governed infantry tactics, where infantry leaders were instructed that, when their attacks were supported by tanks, to advance their units as close behind the tanks using the same maneuvers they would if not supported by tanks.[2]The manual instructed infantry leaders to assume that the tank units would conduct battle the same as they would without infantry as well.

「火炬行動(Operation Torch)」是第二次世界大戰期間，盟軍在歐洲戰區入侵北非的一個作戰行動，美軍在入侵非洲前發表了一些理論，並規劃在「火炬行動(Operation Torch)」期間進行評估與驗證。美國陸軍野戰手冊(FM7-5)「步兵組織和戰術」步兵戰術中指示步兵營領導幹部，作戰中獲得戰車部隊支援時，則藉由裝甲的防護掩護下，用戰車的相同機動性推進他們的部隊，而戰車部隊即使沒有步兵搭配的編組下，將運用其火力、機動力及防護力，盡其所能遂行作戰任務。

FM 17-10, Tank Platoon, which governed tank tactics, allotted GHQ tank battalions to be attached to higher echelons and distributed among infantry organizations as needed. The FM still assumed that infantry would follow behind, as dictated by FM 7-5, except when they encountered anti-tank

weapons. Infantry units would be expected to destroy anti-tank weapons using “stalking and infiltration tactics.”

美國陸軍野戰手冊(FM 17-10)「戰車排戰術」指示，總部戰車營(GHQ)配屬於較高的層級，依據作戰需求分配戰車單位給步兵部隊作戰管制。若作戰過程遭遇反裝甲武器攻擊時，立即調整作戰隊形，由步兵部隊使用「跟蹤和滲透戰術」摧毀反裝甲武器，否則步兵仍然按照美國陸軍野戰手冊(FM 7-5)律定，跟隨戰車部隊推進。

While there was consistency in doctrine for both tank and infantry leaders, it would take a number of failures before commanders could effectively employ the tanks with the infantry. The armored units employed in Africa were not GHQ battalions and were therefore not trained to work with the infantry. The mass attacks tank commanders had expected to conduct were not possible in the rugged terrain of North Africa. Tanks were forced to be dispersed as infantry support in much smaller numbers than what was originally planned.

儘管戰車和步兵領導幹部的作戰運用與理論是相同的，但步兵指揮官們要能在作戰過程中，有效地使用戰車和步兵，發揮協同作戰能力，還是要經歷許多失敗經驗的累積。例如盟軍在非洲執行的「火炬行動」，盟軍預計在北非崎嶇的地形中，戰車部隊不可能發動大規模襲擊，因此沒有編組受過與步兵協同作戰訓練的總部戰車營(GHQ)。

Infantry commanders did not know what to do with the tanks when they received them. Initially, infantry units, attempting to locate and fix their enemies while leaving their tanks behind, would be pinned down and destroyed with indirect fire. In other cases, when tanks were moved to the front, they would move too fast for the infantry to keep up, running themselves into anti-tank fire. When the infantry did keep close, they would often absorb fire meant for the tanks.

步兵指揮官在戰車部隊配屬時，不知道該如何運用。最初作戰運用，是將戰車佔領固定陣地，步兵部隊離開戰車防護範圍，搜索敵軍位置並回報後，藉由目標指示、座標定位與火力要求，以直接或間接火力殲滅敵軍。然而在戰場實際景況下，當戰車移動速度太快時，步兵機動性不足，則戰車將遭到反裝甲火力的摧毀，但是步兵太過靠近時，又經常會受到戰車被集火攻擊的傷害。

The tanks were being moved around so often they were typically unable

to develop cohesion with their infantry counterparts as a combined-arms unit and to develop effective TTPs. They also had trouble accessing spare parts and crew replacements.

戰車為發揚火力，在戰場上需要結合地形地貌轉移陣地，通常與步兵單位協同作戰時，無法整合協同作戰部隊戰術、科技和作戰程序(TTPs)凝聚戰力，他們也難以獲得戰車主次系統備件和機組更換。

The chief of the Armored Force, LTG Jacob L. Devers, wrote the following to GEN George Marshall in 1942: “Economy-of-force and unity of command go together. You get little of either if you get a lot of attached units at the last moment. Team play comes only with practice.”

1942年，裝甲部隊總司令雅各·德維爾斯中將(LTG Jacob L. Devers)給喬治·馬歇爾將軍的戰爭原則指導：「武力經濟和統一指揮是相輔相成的。如果在作戰的最後一刻，獲得再多的作戰配屬部隊，也無法扭轉戰況的優劣，因為協同作戰能力能否發揮，是依據聯合演習累積的經驗成果」。

Devers’ note to Marshall reflected what Americans had been learning while fighting. In Africa, organizations in which tanks and infantry were attached together for extended periods ultimately became highly capable in battle.

雅各·德維爾斯中將回顧美軍在戰鬥中所學的經驗，並將累積的成果與作戰經驗提供給馬歇爾，因此戰車和步兵經過長期的組織與訓練後，盟軍最終在非洲戰場的「火炬行動」戰鬥中，大幅提升了協同作戰能力。

504th and 740th advance on Siegfried Line
參、盟軍第504傘兵團和第740戰車營突破「齊格菲防線」

Company C, 740th Tank Battalion (GHQ), was attached to 504th Parachute Infantry Regiment (PIR), 82nd Airborne Division, for the advance on the Siegfried Line Jan. 28, 1945. They were equipped with M4 Sherman tanks, each with a 76mm cannon, two 30-caliber coaxial and bow machineguns, and a 50-caliber pintle-mounted machinegun on top of the turret.

美軍第82空降師於第二次世界大戰期間編成，其隸屬第504傘兵團(PIR)奉命作戰管制第740戰車營(GHQ)戰車C連(1944年美軍戰車營由3個中型戰車連、1個輕型戰車連混合編成，通常賦予中型戰車A、B、C連，輕型戰車D連的代

稱)，於1945年1月28日由法國穿越萊茵河，突破德國「齊格菲防線(Siegfried Line)」(Siegfried Line 又稱為西牆或齊格菲陣地，德國為對抗法國的馬其諾防線所構築的重砲陣地，該防線沿荷蘭邊境、比利時、盧森堡、法國，由北向南延伸至瑞士，全長630公里，防線縱深35至75公里，在第二次世界大戰期間，遲滯盟軍5個月的作戰時間)，第740戰車營(GHQ)戰車C連使用M4謝爾曼戰車，火力配賦76公厘火砲、2挺30公厘機槍(同軸和副駕駛機槍)，以及1挺50公厘口徑機槍在砲塔頂部。

One tank platoon from Company C was attached to each of 504th's three battalions. Their objective was the town of Herresbach, Belgium, and they would be the right flank of First Army.

第504傘兵團的3個步兵營，分別作戰管制戰車C連的戰車排，編成特遣隊擔任盟軍第1軍的右翼部隊，負責攻佔比利時的黑爾斯巴赫鎮。

The 3rd Platoon from Company C of the 740th and 3rd Battalion of the 504th would lead the attack. Snow and fog covered the advance down a single narrow trail. Single tanks led paratroopers marching in columns of two spaced at platoon interval.

在白雪和霧氣籠罩的環境中，第504傘兵團第3特遣隊任先遣部隊，沿著一條狹窄的小路戰術行軍，傘兵藉由單輛戰車掩護下行接敵運動。

圖2、第504傘兵團第3特遣隊戰術行軍

Figure 2. Soldiers from 740th Tank Battalion and 82nd Airborne Division push through the snow near Herresbach, Belgium, Jan. 28, 1945. *(U.S. Army photo)*

1945年1月28日，第82空降師與第740戰車營士兵，在比利時黑爾斯巴赫鎮附近，穿越覆蓋白雪狹窄的道路。(照片由美軍提供)

資料來源：ARMOR Mounted Maneuver Journal Fall 2020,第103頁

For the first 7,000 yards of the advance, the column encountered only minimal resistance, consisting of machinegun and small-arms fire. At that point the column was notified of a German counterattack to its north. Four tanks assembled at the front of the formation, and infantry climbed on to maneuver toward the suspected enemy.

先遣部隊在「齊格菲防線」前進時，僅遭遇零星部隊機槍和小口徑火砲射擊，推進到7公里距離時，接獲德軍部隊向北反擊的通報後，該部隊將4輛戰車集結在編隊前面，步兵搭乘戰車，藉由砲塔掩護下快速機動，搜索敵軍位置。

The German and American columns stumbled upon each other, and without hesitation American paratroopers and tanks jumped into action, seizing the initiative. The lead tank opened with its full complement of machineguns as well as its main cannon, while paratroopers on the ground charged forward, firing from the hip. The violent combined-arms action was over in 10 minutes, with the 504th reporting more than 100 Germans killed and about 180 captured. Not a single American casualty was reported. The town of Herresbach was seized within an hour.

當德軍和美軍部隊遭遇時，美軍戰車部隊毫不猶豫，使用所有武器擊火射擊先發制人，掌握戰場主動權，傘兵部隊則藉由戰車優勢的火力及裝甲的防護下，朝隊形潰散的德軍衝鋒射擊，經過聯合武器10分鐘猛烈的射擊後，第504傘兵團回報，美軍無人傷亡，德軍百餘人遭射殺，約180人被俘，比利時的黑爾斯巴赫鎮也在1個小時內被佔領。

Interspacing tanks among infantry platoons along the canalizing trail to Herresbach allowed for optimal security and firepower spread throughout the formation. Upon notification of contact, the ability of riflemen to ride toward the enemy on top of a platoon of tanks no doubt increased the concentration and tempo of the movement-to-contact. The ability of the tank-infantry team to react to such a large enemy force so decisively in so little time was a result of mobility, shock and firepower that would have been lacking without armor support.

在通過萊茵河前往黑爾斯巴赫鎮的戰術行軍中，戰車排在整個編隊中提供步兵最佳的安全防護和火力支援，並且在接獲敵軍動態時，以戰車排載運步槍兵搜索敵情的能力，大幅提升接敵運動的集中度與打擊節奏，步戰特遣隊在遭遇龐大的敵軍時果斷反應，充分發揮戰車機動、震撼與打擊能力，如果沒有裝甲部隊支援，則無法達到火力制壓的效果。

Infantry-armor task force in Korea

肆、韓戰中的步戰特遣部隊

As the war in Korea progressed into 1951, especially in the west where terrain was more forgiving, American and United Nations forces were regularly conducting combat operations in infantry-armor battalion task forces.

隨著韓戰進入1951年，美軍和聯合國作戰部隊，經常以步戰特遣隊任務編組，遂行作戰行動，特別是在較為平坦與開闊的韓國西部地區。

Typically an infantry regiment consisting of three battalions had a tank battalion of four companies in support, and each battalion would have one or two tank companies attached in addition to other enablers such as engineers, artillery and reconnaissance companies. These infantry-armor task forces were successful in limited-objective attacks such as the attack on Osan-Suwon Jan. 15, 1951.

一般來說,通常步兵團由3個步兵營編成,另編設1個由4個連組成的戰車營,每個營除作戰管制1至2個戰車連外，另任務編組包括工兵、砲兵和監偵連等單位。以下就1951年1月15日韓戰期間(水原市-烏山市地區)，美軍編組步戰特遣部隊，在有限目標攻擊中獲得勝利為例，說明作戰經過。

The 27th Regimental Combat Team (RCT) was organized into three task forces of 27th Infantry Regiment, supported by 89th Tank Battalion. Task Force Baker – consisting of Soldiers from 2nd Battalion, 27th Infantry Regiment, and Company C, 89th Tank Battalion – spearheaded the attack on Suwon. Their rapid advance, coupled with the shock effect and firepower of their armor enablers, caught the defending enemy off guard, inflicting 200 casualties.

韓戰期間美軍由第27步兵團的3個特遣部隊，作戰管制第89戰車營 C 連編成團級戰鬥隊(RCT)編組遂行作戰任務，其中「貝克特遣隊」由第27步兵團第2營和第89戰車營 C 連的組成，在1951年1月15日向水原市發起攻擊。他們快速的機動，加上機甲部隊震撼衝擊與強大的火力，警戒部隊措手不及，造成200人傷亡。

The RCT continued toward and into Suwon Jan. 16-17 with additional air support. With shock and surprise, the RCT engaged enemy forces on top of and inside buildings, flushing them out onto the street kill zones with air and

ground fire. By the end of the operation, an estimated 1,150 enemy were killed at the cost of a single American casualty.

「貝克特遣隊」(RCT)於1月16-17日在空中支援的掩護下，繼續由南向北的方向進入水原市區，該特遣隊運用空中和地面火力，與建築物頂部和內部與敵軍交戰，建築物內部的敵軍在強大的地空火力震撼下，被迫離開堅固工事進入街道殲敵區域作戰。整個行動結束時，估計有1,150名敵人喪生，僅造成1名美軍傷亡。

Similar infantry-armor task-force concepts were put to use successfully in several more operations of this time period. Notable is Operation Punch in February 1951, in which 25th Infantry Division attacked to seize two hilltops outside the town of Suwon. Two separate task forces were assembled from 64th and 89th Tank Battalions and 1st and 2nd Battalions of 27th Infantry Regiment. The plan consisted of the tank battalions launching penetrating attacks to the flanks and rear of the hilltops, while infantry attacked up the hills themselves.

在韓戰期間有許多作戰成功的案例，都是以類似步戰特遣隊的任務編組遂行作戰任務，本文是作者閱讀美軍裝甲兵學校出版的《裝甲部隊在韓戰中的運用》一書後，引用1951年2月美軍第25步兵師在韓戰中著名的「衝擊行動(Operation Punch)」，該作戰任務襲擊了水原市外圍的兩座山頂，整個作戰計畫分別由戰車第64和89營，以及第27步兵團第1、2營，編成2個獨立的特遣部隊，戰車部隊向山頂的側翼發起攻勢，突穿敵方陣地後，持續向側、後方發起攻擊，而步兵部隊則負責攻佔地形要點。

The armor teams were not meant to seize or secure any terrain, only to disorganize and disrupt the enemy to inflict maximum casualties and then withdraw. In the flanking maneuver, each tank company was teamed with an infantry company, and both commanders remained together physically for the rest of the operation. Typically the infantry commander would ride on the back deck of the armor commander's tank. The operation ended with a reported 4,251 enemy killed at the cost of 100 allied casualties.

作戰任務中，戰車部隊負責瓦解和破壞敵軍組織，並在造成最大的傷亡後，依戰場景況轉用兵力，而不是奪取或保護任何地形。攻擊行動時，戰車通常在側翼運動，每個戰車連都會和步兵連協同作戰，步兵連連長則會搭乘在戰車連連長戰車的後甲板上，一起指揮部隊作戰。在「衝擊行動(Operation Punch)」結束後，戰損報告敵軍4,251名喪生，盟軍約100名傷亡。

3-73 Armor and Operation Just Cause
伍、第73裝甲團第3營站展開「正義之師」軍事行動

In the early morning of Dec. 20, 1989, Company C, 3rd Battalion, 73rd Armor Regiment, air-dropped 10 M551A1 Sheridan tanks to the east of the Tocuman-Torrijos Airport in Panama as part of Operation Just Cause. The light tanks of this unique division-organic tank battalion were equipped with a 152mm main gun, 7.62mm coax and the commander's .50-caliber pintle-mounted machinegun.

1989年12月20日至1990年1月31日間，美軍以保護美國僑民和巴拿馬民主選舉及打擊販毒的名義，對巴拿馬展開代號「正義之師(Operation Just Cause)」的軍事行動，迅速贏得勝利。1989年12月20日清晨，美軍第73裝甲團第3營 C連，在巴拿馬托庫門-托裡霍斯機場以東，空降了10輛M551A1謝爾登輕型戰車，該戰車火力配賦152公厘主砲(可發射紅外線導引 MGM-51橡樹棍反戰車飛彈)、7.62公厘同軸機槍，以及1挺50公厘口徑機槍在砲塔頂部。

Of the 10 vehicles dropped into Panama, eight were made operational and organized in sections belonging to each of the three PIRs, with one section establishing a blocking position at the airport's entrance. Soldiers from 1st Battalion, 504th Infantry Regiment made direct contact with the Panamanian Defense Force (PDF) when they were ambushed by a machinegun position while clearing an obstacle not far from the drop zone. The lead tank commander immediately opened fire with his .50-caliber machinegun, and his wingman, upon acquiring the enemy location, fired a single 152mm high-explosive (HE) round, causing the side of the building occupied by the enemy to collapse. Enemy fire ceased, and the infantry battalion reduced the obstacle and continued.

在進入巴拿馬的10輛 M551A1謝爾登輕型戰車中，有8輛分別由第504傘兵團3個營作戰管制，其中第1營佔領有利位置，封鎖機場出入口處戰略要點。當遭遇巴拿馬國防軍(PDF)在機槍陣地伏擊時，戰車指揮官立即使用車頂50機槍壓制，以彈著標示敵軍方位，射手同時瞄準敵機槍陣地後，以主砲發射152公厘高爆榴彈(HE)，導致敵軍陣地坍塌，步兵營則趁敵陣地瓦解、火力逐漸減緩下，持續發揚火力，殲滅敵軍。

Later on the same route, Sheridans and infantry encountered another obstacle consisting of an apparent vehicle-born improvised-explosive device. The obstacle was reduced by firing a single 152mm HE round. When the smoke cleared, the tanks pushed the wrecked vehicles aside, and the route was open.

後來謝爾登輕戰車與步兵在同一條路線上，發現一個貌似裝設簡易爆炸裝置的汽車炸彈。該部隊對該障礙發射一發152公厘高爆榴彈(HE)，當煙霧散去時，直接使用戰車把廢棄車輛推到一邊，確保接敵運動路線暢通。

Elsewhere, Sheridans were being put to work on the offensive against the PDF's Commandancia complex and airborne and ranger training base. In the former, Sheridans used their main cannon to knock down walls and open areas for dismounted maneuver. They fired HE rounds into buildings as preparatory fires prior to the infantry entering and clearing. The HE rounds killed occupants and drove the enemy into a state of confusion and discord before being swept away by the precise urban maneuver of the paratroopers.

在其他地方，謝爾登輕戰車正在對巴拿馬國防軍突擊隊的營區及空特訓練基地發起進攻。攻擊國防軍突擊隊時，作戰部隊使用戰車主砲摧毀圍牆，清掃射界並暢通機動路線，並以戰車優勢火力向建築物連續發射高爆榴彈，使敵人陷入混亂狀態，掩護傘兵部隊逐次擊滅敵軍部隊。

In the latter, the company commander of the armor-infantry team took his position at the deck of one of his attached Sheridans and manned the dismount telephone to coordinate direct fires, putting tanks to use preventing fratricide.

攻擊空特訓練基地時，步戰特遣隊的連長帶著自己的無線電機，站在甲板指揮作戰，藉由謝爾登輕戰車的砲塔掩護，直接以無線電下達射擊口令，避免友軍間發生誤擊的狀況，並充分發揮火力。

圖3、參與「正義之師」軍事行動的 M551A2謝爾登輕戰車

Figure 3. An M551 Sheridan sits outside the Apostolic Nunciature, the Vatican's embassy, during negotiations for Manuel Noriega's surrender in Operation Just Cause. *(U.S. Army Center of Military History photo)*

巴拿馬軍事領導人曼紐・諾瑞嘉與美軍「正義之師」軍事行動談判投降期間，1輛 M551謝爾登輕戰車停在梵諦岡大使館外面(照片由美國陸軍歷史中心提供)。

資料來源：ARMOR Mounted Maneuver Journal Fall 2020, 第105頁

In contrast to prior infantry-armor operations, the paratroop commanders knew the capabilities of their permanent armor enablers, and likewise the Sheridan crewmen knew how their infantry counterparts fought. Together they produced a lethal and highly successful team. Tanks were available to assist their infantry counterparts in the joint forcible entry almost immediately after hitting the ground and provided much-needed mobility, shock and firepower to keep paratroopers moving from the airhead to their objectives while minimizing casualties. Company C accomplished its mission and returned home from Panama with only one crewmember wounded.

與以往的步戰協同行動相比，傘兵部隊指揮官們知道，跟他們一起作戰的裝甲部隊，擁有強大的作戰能力，同樣地，謝爾登輕戰車的乘員們，也瞭解步兵作戰的方式與能力，在戰場上，可以通過戰車提供急需的機動、震撼與打擊火力，使傘兵部隊可以在安全掩護下，從空降場向作戰目標快速移動，美軍第73裝甲團第3營 C 連執行「正義之師」任務，只有一名乘員受傷。

Company A, 4th Battalion, 68th Armor, at JRTC

陸、第68裝甲團第4營 A 連聯合作戰訓練

In June 2019 at Joint Readiness Training Center (JRTC), Fort Polk, LA, 82nd Airborne Division's MPF Company brought three platoons of Marine Corps LAVs equipped with MILES simulating a 105mm auto-loading cannon and 30 tons of armor. The company supported 1st Brigade Combat Team in the airborne joint forcible entry, followed by defensive and finally offensive operations against a near-peer mechanized enemy.

美軍第82空降師機動保護火力連(MPF)配屬海軍陸戰隊3個排的部隊，在2019年6月間，於洛杉磯波爾克堡的聯合訓練中心(JRTC)進行作戰訓練，海軍陸戰隊裝備重量約30噸的食人魚八輪甲車(LAV-25)，配掛「雷射接戰系統(MILES)」模擬105公厘主砲進行聯合作戰訓練，演習規劃機動保護火力連(MPF)以聯合機降方式強行進入戰場，首先支援第1旅戰鬥隊防禦任務，隨後對概等兵力的機械化敵軍實施攻擊演練。

圖4、謝爾登輕戰車執行巡邏任務

Figure 4. A Sheridan tank supporting the 82nd Airborne rotation at JRTC patrols the forward landing strip in Cortina. *(Photo by Raymond Barnard)*
第82空降師配屬的1輛謝爾登輕戰車，在聯合訓練中心空降場巡迴機動，執行巡邏任務(照片由雷蒙德・巴納德攝影)。

資料來源：ARMOR Mounted Maneuver Journal Fall 2020, 第105頁

The initial plan was to task each of the three platoons to a habitual parent infantry battalion, with one platoon being air-dropped and the other two arriving by air-land. Immediately upon air drop, a platoon of MPF vehicles were made available to the brigade commander to support the infantry battalions as they expanded their control over the airhead.

本次聯合演訓，將機動保護火力連(MPF)的3個排，分別配屬到慣常支援的

步兵營，其中1個機動保護火力排以空投方式進入戰場後，立即向旅長提供火力支援，以擴大步兵營對機降場的控制，掩護另外2個排通過機降方式抵達。

After encountering minimal resistance, the platoon was attached to 2nd Battalion, 501st PIR, and assisted in repelling multiple mechanized-infantry counterattacks over three days until it was finally destroyed by enemy armor.

當機動保護火力排空降進入戰場，遭遇到極小的抵抗後，被配屬在第501傘兵團(PIR)第2營，協助遂行防禦作戰，經過3天機械化步兵的連續攻勢，最終被敵人的裝甲摧毀。

The morning after, a two-vehicle section that was initially attached to 1st Battalion, 504th PIR, was rerouted to 2nd Battalion, 501st PIR, to supplement that battalion's defense. The receiving company commander provided clear and brief guidance to provide a defensive battle position (BP) facing down a narrow road with platoons of infantry occupying BPs at the flank. Around midnight an enemy armored-battalion column approached the company engagement area. As planned, infantry attempted to engage enemy armor first with their dismounted anti-tank systems with limited success. The MPF section then began engaging enemy armor with immediate effects.

隔天上午，將最初配屬給第501傘兵團(PIR)第1營的機動保護火力排，其中2輛車調整給第2營作戰管制，補充該營的防禦火力。該連連長在一條狹窄的道路上，以明確和簡短的指導，賦予機動保護火力排防禦戰鬥陣地(BP)，並要求步兵排戰鬥陣地側翼佔領地形要點。午夜時，敵軍約1個裝甲營縱隊接近防禦陣地。該連隊按火力計畫，步兵首先試圖用反裝甲武器摧毀敵方裝甲車輛，惟收效甚微，但是在機動保護火力排開始發動攻勢後，攻擊立即產生了效果。

Initially, the enemy focused on the dismounted infantry arrayed in the tree line at their flank. A few boyevaya mashina pekhotys (BMPs) identified and fired back at the engaging MPF section, but their 30mm cannons had no effect on the MPF platform's frontal armor. The section expended all of its ammunition in the space of 20 minutes, destroying a company-sized element of T-80s and BMPs.

一開始，敵軍將兵力集中狹窄的道路側翼，隨後幾輛機步戰鬥車(BMP)發現機動保護火力排(MPF)的位置後，立即以 30公厘口徑主砲實施攻擊，但是無法穿透機動保護火力排(MPF)戰車的正面裝甲防護，機動保護火力排(MPF)在20分鐘內用盡所有彈藥，摧毀裝備 T-80戰車和機步戰鬥車(BMP)的連級部隊。

Continuing to receive only 30mm fire, the section arranged its vehicles to form an effective roadblock, and the enemy armored column was completely halted. It was the first time in recent history that a light brigade had been able to effectively stop the advance of the armored counterattack at JRTC.

面對敵軍僅有的30公厘口徑主砲火力，機動保護火力排(MPF)調整其車輛隊形，在敵機動路線上形成有效的路障，完全阻止敵裝甲縱隊前進的攻勢。這是聯合訓練中心(JRTC)近年演訓歷史上第一次，輕型裝甲旅能夠有效地阻止敵軍裝甲部隊的攻擊行動。

Following the defense, the MPF company was reconstituted and divided up into three armor-infantry teams, two of which were tasked with breaching enemy defenses around the stronghold town of Sangari and passing dismounted paratroopers onto the objective. These teams were augmented with M1A2 72-ton main battle tanks in addition to the MPF platforms. On the approach, the teams took little contact until a section of both MPF vehicles and M1A2s were mistaken for enemy armor and destroyed by friendly dismounted anti-tank systems. After absorbing this significant loss, the teams continued to the objective, meeting and destroying enemy armor and successfully opening the breach for infantry to follow through.

在聯合防禦演訓後，機動保護火力連重組分給3個步戰特遣隊，其中2個小隊的任務，是在桑加里鎮周圍突破敵人的防禦陣地，並掩護空降傘兵轉移到作戰目標。這次作戰行動中，特遣隊配屬的機動保護火力排車輛，另外增加72噸的 M1A2主力戰車。使用這樣的任務編組，作戰過程中很少指揮與聯繫，造成部分機動保護火力排車輛和 M1A2主力戰車被友軍反裝甲系統摧毀。在遭受誤擊友軍的重大損失後，各特遣隊繼續向目標前進，接觸並摧毀敵人的裝甲部隊，並成功突破防禦陣地，掩護傘兵進入作戰目標。

Lessons for the future

柒、經驗教訓與精進作法

The bottom line is that success of the light armor-infantry team, as with any enabler, is predicated first on the combined understanding of each other's capabilities and limitations by both armor and infantry leaders, leading to harmonious coordination between crew members and dismounts. This is best achieved through repeated MPF-infantry maneuver training at battalion and below level with organic or habitually attached MPF crews. In a

mission-command environment, the efficacy of armor enablers in training and the development of strong TTPs is limited to a well-informed commander's creativity and willingness to take prudent risk. Once this habitual training relationship is achieved and strong TTPs are established among leaders, success on the battlefield will follow.

歸根究底，輕型裝甲部隊的成功的要素，首先取決於裝甲和步兵領導者對彼此作戰能力和限制的理解，以及部隊間的協調能力。機動保護火力計畫(MPF)與步兵部隊，通過慣常支援與反複的機動、聯合演訓，將能達到最佳的作戰效果。在任務指揮環境中，裝甲部隊指揮官需要具備創造力和謹慎冒險的心態，從訓練的過程與經驗的累積中，提升運用戰術、科技和作戰程序(TTPs)方面的能力。只要務實執行平時的聯合演訓，戰場上的成功將會隨之而來。

While this formula for success may seem trivial to commanders who have spent their careers in armored and mechanized organizations, IBCTs typically lack personnel with mechanized experience or understanding of armor doctrine. This general lack of understanding of armored capabilities and doctrine among leaders in IBCTs is also dangerous in that it has created a prevalent attitude of rejection toward the armored force. Light-infantry commanders and staff typically believe they can accomplish their mission without armor because they have been doing so for decades. History has shown, however, that permanent light armor augmentation is an incredible force multiplier, which will allow the IBCT to accomplish much more.

雖然這種成功公式，對於在裝甲和機械化組織度過職業生涯的高階指揮官來說似乎微不足道，但步兵旅戰鬥隊(IBCTS)通常缺乏具有機械化經驗或對裝甲作戰準則理解的人員，而這在戰場上來說是相當危險的，它將導致了步兵指揮官和參謀人員對裝甲部隊的抗拒態度，他們通常認為，可以在沒有裝甲部隊的支援下完成他們的使命，因為他們已經這樣做了幾十年。然而，歷史已經表明，具備慣常支援輕型裝甲的步兵部隊，將增強令人難以置信的力量，使步兵旅戰鬥隊(IBCTS)在最小的傷亡下完成作戰任務。

Whether light-infantry commanders want it or not, the MPF company will become a part of IBCTs in the near future. For those commanders who find themselves with armor enablers for the first time in their formations and don't know how to employ them, I offer that there is no right answer, but experience and history has taught us to adhere to these key principles :

無論步兵部隊指揮官是否願意，機動保護火力車輛在不久後將成為步兵旅

戰鬥隊(IBCTS)的一部分。對於第一次編組裝甲部隊，而不知道如何作戰運用的指揮官們，我就歷史戰役及演訓經驗，在以下提出幾點關鍵原則：

The MPF requires local security provided in the form of dismounts or a wingman vehicle.

一、機動保護火力車輛必須分散配置在被支援單位的前緣或側方。

Successful combined-arms teams can be formed between two or more MPF platforms, an MPF and a machinegun-equipped humvee, or preferably an MPF and a squad of riflemen. Dismounts are ideal because it is critical to cover the deadspace around the vehicle and prevent infiltration.

可以運用2個或以上的機動保護火力車輛之間，編組成功的聯合武器編隊，例如機動保護火力車輛搭配和裝備機槍的悍馬車，或是搭配1個步槍隊伍。靈活編組的情況下，能減少車輛周圍的觀察死角，並防止敵軍突擊。

Avoid deliberately maneuvering the MPF platform off-road through low ground or loose sand and soil.

二、避免在地勢低窪地區機動或嘗試穿越地質鬆軟的機動路線。

A thorough terrain analysis should be conducted at a minimum via a map reconnaissance to determine severely restricted terrain. You don't want your vehicles to get stuck.

若你不希望機動時，戰鬥車輛卡在戰場上，至少應該透過圖上偵察進行徹底的地形分析，以確保接敵路線上，沒有影響嚴重機動限制的地形。

Make use of engineer assets to provide hull defilade fighting positions.

三、利用工兵機具提供戰鬥車輛半遮避陣地。

The MPF platform benefits from the smallest silhouette possible while still being able to traverse its turret.

機動保護火力砲塔具有砲身低矮、截面積狹窄、迴旋輕便迅速等優勢，作戰時，能在半遮避陣內持續發揚火力。

Give the MPF clear lines of sight and maximum standoff.

四、給機動保護火力車輛需要清晰的視線和最大的對峙距離。

The MPF is equipped with precision, high-velocity, direct-fire, laser-ranged weapon systems firing both kinetic and chemical ordinance. These weapons systems can affect every perceivable land target accurately and easily at least 3,000 meters away.

機動保護火力車輛配備先進的武器系統，具有精度高、射速快及雷射測距等功能，能依目標種類，直線發射動能和化學能彈藥，輕易且準確地威脅距離3公里外的陸地目標。

Plan to make Class III resupply available to the MPF daily and plan to make Class V resupply available during offensive or defensive action against armor or armored targets.

五、除第3類補給品的每日補給量外，面對敵裝甲或反裝甲部隊的進攻或防禦期間，另外提供第五類補給品。

The MPF in contact with armor will run out of main-gun ammunition quickly. Ensure that the MPF platoon sergeant and battalion S-4 have made contact during logistical planning.

機動保護火力車輛面對敵裝甲或反裝甲部隊時，將會迅速耗盡攜行彈藥，在勤務補給規劃中，應適切提升攜行及補給量，並詳實律定支援營補給方式、運輸路線，確保戰鬥與戰鬥支援單位能切取聯繫。

The infantry planner should have constant access to the MPF platoon leader prior to execution.

六、制定作戰計畫前，步兵作戰參謀應與機動保護火力排長保持聯繫。

During execution, the combat commander should prioritize his control of the MPF. The MPF will most likely be the combat commander's most casualty-producing weapon system and best enemy-detection system. Employing it at the center of mass of the operation is critical and enabled by keeping the MPF leader physically with the tactical planner prior to (and decision maker during) combat operations.

擬定作戰計畫階段，作戰指揮官應優先考慮機動保護火力車輛作戰任務，因為該部隊的裝備性能，極有可能是作戰任務編組中，最先發現敵情警報並造成敵最大傷亡的單位。在軍事決策期間或是作戰行動之前，部隊指揮官、作戰參謀官應與機動保護火力領導者保持緊密的聯繫，作戰全程以機動保護火力車輛為重心，這將影響整個行動的結果。

Adherence to these principles and the lessons history teaches us, coupled with the application of common sense, will set your operation up for success. When the platform arrives, its technical specifications will no doubt affect its maneuverability and combat capabilities. The key is to train together, take risks and make mistakes, then train again, and again, and again.

若領導者能堅持以上的原則，輔以基本戰術的應用，我們可以透過戰役的經驗得知，你所帶領的部隊將能在每一場作戰行動中獲得勝利。當組織轉型後，部隊獲得了新的裝備，其戰術運用、科技技術與作戰程序無疑將對現行部隊機動性和作戰能力造成影響，關鍵在經過不斷重複的聯合訓練、大膽運用、檢視錯誤、檢討精進等過程後，整體戰力將會獲得提升。

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