

A black and white photograph capturing a moment of intense combat. Several soldiers are positioned in a trench, surrounded by dense, leafy vegetation. One soldier in the foreground is lying prone, aiming a rifle towards the left. Another soldier to his right is also prone, holding a rifle and looking towards the camera. A third soldier is visible in the background, partially obscured by the foliage. The scene is filled with the textures of mud, dirt, and various types of plants, creating a gritty and realistic atmosphere of a battlefield.

SWEAT



FIELD CAMP

Benjamin Lee

Under Canvas and Field Training

AT LEAST FOUR WEEKS of Basic Military Training must pass before this momentous event. Everything every recruit has learned – combat tactics, field craft (camouflage, cover, concealment), weaponry – will culminate in an NSF’s first foray into the field: one without a warm meal and a shower for four to five days, that is.

Basic infantry section tactics have already been drilled into the new soldiers – even seemingly unremarkable techniques such as holding the rifle in your non-master hand when you have to dive for cover so that your master hand braces your landing on the ground. Such a small detail is

made most significant when you do realise that an incorrect technique may result in the M16’s iron sights causing a painful gash and multiple stitches on your chin.

Fire and movement may be far from mind when you hit the groove on the 8-km combat route march. But an ambush by a pocket of “enemy” resistance pumps you with adrenaline. The whiff of gunpowder from blank ammunition and the cracks of thunder flashes make you feel like a real combatant. You know your drills. You automatically echo your section commander as he identifies and locates the enemy. Your reflexes

[FACING]
All in place
for stand-by
“basha” during
field camp,
1960s.



[LEFT]
Recruits at
ease during
field camp,
BMTc, Pulau
Tekong, 2014.

[PREVIOUS]
NSmen
training in
Pasir Laba,
1988.

[OVERLEAF]
Powder
and soap,
essentials for
any field camp,
1970s.





are sharper than you've ever imagined them to be.

The day winds down into late afternoon, and you're instructed to start building your accommodation for the night. A vinyl sheet, a rope and a metal pole will give you a "five-star" al-fresco structure called a "basha". Collectively, those items are meant to protect you from the elements. Of course, nothing keeps you sheltered as you're building your tent – a torrential downpour heavy enough to drown you as you look skyward with an open mouth soaks you through to the bone, and stops just as you're ready to duck under canvas.

If you're not the outdoorsy sort, well, you are now. There is time for a meal and whatever comes in those green pouches taste great, especially the desserts. But you don't quite know what to make of the combined smell of food, sweat and the insect repellent issued by the SAF. (This innocuous-looking tube is the stuff of legends. If you doubt its ability to repel insects, try using it as a permanent ink remover).

Personal hygiene in the field is one of the new lessons learned as your first "powder bath" is taken, and you are, for once, glad for the weight of the fresh set of uniforms you lugged in your field pack. Still, you're not exactly clean. And exhausted as you are, you are not going to get a good night's sleep, having heard stories of how instructors test your alertness by trying to steal your rifle while you snooze.

The insect repellent wears off and there's the constant buzzing of mosquitos by your ears, but you're too tired to bother with re-applying the repellent. You seem to itch on every square centimetre of clammy skin under your uniform.

You survive the night, all three-and-a-half hours of fitful, occasional sleep. You think you could make it through the rest of the exercise, but there's that little thing called a *changkul* which is listed on the quartermaster's inventory as "tool, entrenching, metal, with stick, wooden". That thing is going to be an extension of your arm as you toil away digging a shellscape in which you will lie in wait for any "enemy" who is daring enough to cross your, and your platoon mates'

defensive perimeter.

And toil away you do. What time did you start digging? What time is it now? How many litres of sweat have you produced? Are your hands blistering? Why is your trench still so shallow? Surely there's a more efficient way to dig a trench. Where's your trench buddy? Is he digging as quickly as you? What about yourself – are you letting your platoon down with your lack of progress? Come on, you can do it!

Eventually, you do complete the task. And these days, there is an additional ritual at the end of this gruelling segment – letters from home, written by your loved ones, to be opened and read.

You've completed the rite of passage within a rite of passage that marks your becoming a true soldier. Boy, we're so proud of you. Your country is too.

You are invariably moved to tears.



[FACING TOP]
Eating outfield could mean combat rations.

[FACING BOTTOM]
Enjoying food trucked in from the cookhouse, 1970s.

[LEFT]
Overcome by emotions after reading a letter from home, 2014.



LEARNING TO SHOOT

Koh Boon Pin

How to Fire a Rifle

SOON AFTER THE START of Basic Military Training, every recruit will go through a Weapons Presentation Ceremony. This is the moment when each is presented with their personal rifle, aka their “wife”. They are then taught how to take care of her, ensuring that she is well maintained, protecting her and keeping her close to their side (especially during field camps when the sergeant may try to steal her).

They are each responsible for maintaining the cleanliness and hence the operational ability of their personal arms. They have to know every serviceable part and clean them “bone dry” for inspection, and oil it sufficiently “but not too much” to lubricate its operation and to prevent it from rusting.

After initiation by firing blanks, the exciting day will come when they are allowed to fire live rounds at the 100-metre range. Who can forget the first time you heard the sound of gunfire echoing through the hills?

NSman Benjamin Lee recalls the correct technique for good marksmanship: “Calm down. Breathe in, exhale slowly. Hold. Don’t pull the trigger. Squeeze it until the rifle fires – all while looking through the iron reticle sights sometimes blurred by a drop of sweat beading off your master eyelid.”

Those who demonstrate their firing abilities win a marksman badge and have the chance of getting sent for further training to become snipers. Those who don’t, get labelled “bobo king”



(a mispronunciation of “wowo” which is short for “wash out”).

Good technique alone will not guarantee a shot on target if your rifle is not zeroed.

First-generation NSman Lam Chun See gives a tutorial on how zeroing was done in the days of the AR15 and M16. “Basically, it involved firing a group of three shots, running 100 metres to check target, measuring the coordinates of the mean point of impact (MPI), pasting over the holes and then bringing our rifle to the zeroing station. The MPI is located by joining one point of the triangle formed by the three bullet holes to the mid-point of the opposite (longest) side, and then dividing this line into three equal parts. The MPI is

[FACING] Prime Minister Lee Hsien Loong, then a lieutenant, demonstrates the right way to aim at the kneeling position.

[ABOVE] Firing live rounds requires even more thorough rifle cleaning.



one-third of the distance from the base. To do all this, we had a wooden ruler fastened to our helmets with a rubber band. We also had to paste the holes with small pieces of paper with glue from a wooden box. And while all this was happening, the rest of the details had to wait; and we somehow got lots of scolding from our corporals.”

For many SAF soldiers in the early years, the phrase “I.A., I.A.!” can invoke memories of blur recruits and such scolding corporals. Meant to be shouted by soldiers when their rifle is not firing, it is oftentimes all that the soldier does as he shouts “I.A., I.A.!” and then freezes. Only when an instructor appears alongside him, tapping on the soldier’s helmet and asking him what “I.A.” means, does he remember that the abbreviation for “Immediate Action” means he is supposed to take action to rectify the problem himself.

For generations of SAF soldiers, nothing beats the exhilaration of hearing the command “Firers, watch your front!” before having targets swivel into view for a few seconds and then disappearing if you have shot them within the timing allotted.

The appearance and disappearance of targets were once determined by those who were invited to the butt party. Later, in 1987, with the introduction of electronic ranges, the hefting and lowering of the Figure 11 targets no longer depended on human muscle.

The introduction of technology to SAF shooting ranges of those days pales when compared to the facilities of today.

SAF soldiers in the new millennium now wield the factory-zeroed SAR21 rifle (otherwise known as Singapore Assault Rifle – 21st century) with its built-in Laser Aiming Device which takes the guesswork out of night firing.

Now, after being issued with their wives and taught to handle her, soldiers may fire their first live round in the simulated environment of the Multi-Mission Range Complex (MMRC) which was opened in October 2013.

However, lest you be misled, the ranges at MMRC do not replace outfield training and outdoor ranges but complement them.



[PREVIOUS]
Dashing back to the firing points after checking targets.

[ABOVE]
The butt party standing by to hoist and lower targets.

[RIGHT]
At your own time, own target...

[LEFT]
Marksmanship badge, circa 1970s.





GRENADE!

Koh Boon Pin

Throwing a hand grenade is a rite of passage for every SAF recruit. This is as it should be, since it is part of a range of personal ammunition issued to soldiers in times of war.

But before any soldier gets his hands on the real SFG87 Fragmentation Grenade, he goes through a series of practice sessions, using a training replica with an instructor.

Whether he is left-handed or right-handed, has sweaty palms or not – that’s when the recruit learns very quickly that real grenades are very different from grenades seen in Hollywood blockbusters.

For one, it is not likely that grenade safety pins can be easily pulled out with his bare teeth, unless he wants to pull out his teeth along with the pin!

So, at the grenade-throwing range, he has to cautiously twist and pull the safety pin out with his

fingers before throwing it over a concrete safety wall.

Then it’s a heart-pounding four and a half seconds of counting behind a wall before the kiwifruit-sized grenade explodes.

The SAF has a new training experience – a Hand Grenade House will be constructed at the Murai Urban Live Firing Facility where troops will be able to throw live grenades into a room before storming in. This means that you will be able to throw a live grenade up to three times during your active service and one or two times as an NSman, compared to just once during Basic Military Training in the past.

And to make sure that the existing stock of hand grenades can be used safely and efficiently, DSTA, SAF Ammunition Command and a local defence industry partner worked together to extend the shelf life of the SFG87 by 11 years with a change-out of the fuze assembly. This means the grenades can be stored for a longer period of time, with no compromise to safety.

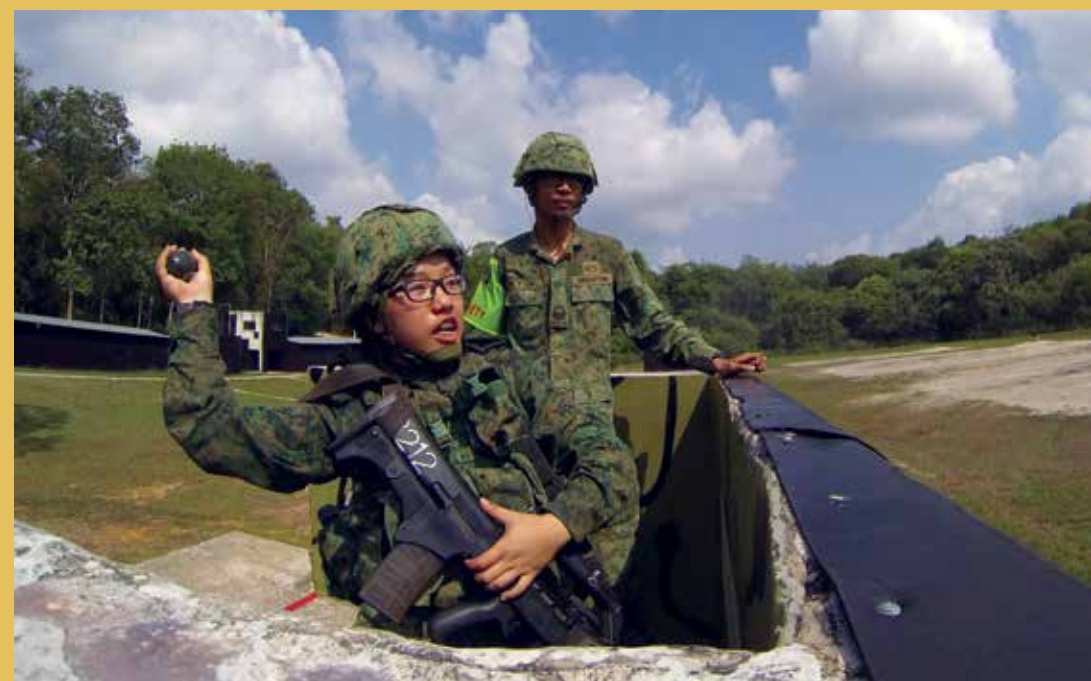
Kaaaboom!



[TOP]
A tense moment, then a feeling of exhilaration during live grenade throwing.

[ABOVE]
Lobbing a thunder flash requires the same technique as grenade throwing.

[RIGHT]
Training to throw a grenade in an urban setting.



[ABOVE]
Stance and technique of throwing a grenade from the standing position.

[LEFT]
A female trainee prepares to throw her grenade.



URBAN WARFARE

Alphonsus Chern

Fighting in Built-up Areas

CLOAKED IN THE PRE-DAWN DARKNESS, a convoy of Terrex Infantry Carrier Vehicles (ICVs) rumbles ominously down a dirt track still shrouded in mist. Reaching a junction, the train breaks into three groups, each moving towards positions planned the night before. Two of them carrying troops for the main assault roll deeper into the jungle; another mounts a slope to provide long-range fire on the enemy targets. One by one, the infantry platoon commanders signal that their men are in position.

“Titanium, now,” orders the OC. The Far Firebase Commander atop a hill, watching his target through a long-range camera on his weapon system, commands his gunner to fire. Inside the insulated eight-wheeled ICV, there is a muffled thudding as the 0.5-inch heavy machine gun delivers a withering burst.

At the target area, all hell breaks loose as copper-jacketed rounds tear holes in the steel shipping containers. Vehicle chassis in the open are pulverised by the hail of incoming rounds. Amidst the firefight, other ICVs have arrived at their form-up points and are disgorging troops for the main assault on the buildings in the Murai Urban Live-Firing Facility, also known as MULFAC.

The OC signals the close-cover group to move in, and a Terrex races into position and lowers its ramp door. “Go, go, go!” shouts the section commander as his men dash out from the back, fanning to the left and right of the vehicle and

[FACING & BELOW] Soldier practising clearing and securing a building. In the past, urban warfare was known as FIBUA – Fighting in Built-up Area.





[BOTH]
Realistic training using live rounds – past and present – needs clear and carefully followed safety rules and precautions.

putting a burst of small arms fire on enemy targets standing at the windows.

On cue, the first assault team moves into position, pounds the door open with a sledgehammer, and storms into the room. They clear room by room, engaging at the targets that pop out from behind corners and doors. Within minutes, the “enemies” are neutralised and the foothold building secured. The second assault team clears the next building.

7.15 am, daybreak, buildings cleared.

With smoke still lingering in the air, “wounded” soldiers are carried to the casualty collection point for triage and treatment by the medics. The rest of the company reorganises as its commander reports to higher headquarters that his objective is secured.

For CPT Satish Seshan, the OC of an infantry company, this exercise scenario is a familiar one. He is intimately familiar with the marked improvement this simulated urban complex has over previous training facilities, where he was limited to urban exercises using blanks, or a two-man team firing live rounds at wooden targets in a small, single room.

“Live firing is indispensable in training my soldiers for actual operations,” he says. When fighting in an urbanised environment, there are no clear lines of sight; there are multiple approaches and vantage points and the enemy can be anywhere.

With five buildings having various room layouts at the MULFAC, soldiers can learn to fight in complex urban environments, overcome doors using real demolition charges, and fire live rounds at reactive targets often placed at their blind spots. Because trainers are able to change the target positions and even the layout of the facility, soldiers will not know where the enemy or innocent bystanders are until they commence the assault.

“In a moment, you have to discern whether your target is a friend or foe,” says CPT Joshua Sandosham, an infantry officer who works on training policy and management at HQ Infantry.

“You have to decide very quickly where to shoot, and whether to kill or just injure. We are glad that this level of training is now available to all infantry soldiers and the rest of the army,” he says.

Video cameras, which are installed at critical areas within the buildings, provide recordings which are useful for After Action Reviews (AAR). There is even a grenade throwing house, where soldiers can appreciate the effects of an explosion within a confined space.

“With live rounds you feel the impact, you see the damage,” says CPT Satish. “It makes soldiers more aware, their drills become sharper, and it gives them confidence.”

But before soldiers can assault the MULFAC, they first need to hone their skills and build their confidence firing live rounds at a range. And the place they do this is at the Multi-Mission Range Complex (MMRC).

Launched in 2013, the facility has two 100-metre ranges. The ranges, each consisting

of 10 lanes, can accommodate a seven-man combat section shoot. The targets are positioned at different levels, enabling the soldiers to practise aiming at the targets, as well as appreciating the various aim points at different distances.

With a sniper weapon range that simulates targets up to a kilometre away, a friend/foe Video Targetry System (VTS) that hones a shooter’s judgment skills, and an urban operations range where the room layout is reconfigurable, the MMRC caters to all types of small arms training, its seven ranges occupying the same footprint once used by a single 100-metre range.

“This is where they practise their fundamentals on decommissioned weapons retrofitted with electronic sensors that fire at a video screen. These soldiers can train cognitively with these interactive video simulations, but using live rounds,” says CPT Joshua, who was involved in the MMRC project. “It’s a completely different experience when you have to actually fire rounds into the targets.”

[BELOW]
Practising the fundamentals of shooting at the indoor range of the Multi-Mission Range Complex with weapons that fire electronic signals.



For CPT Khairuddin Abdul Latiff, a company trainer in the Infantry Training Institute, soldier training becomes efficient. “Because this is an indoor facility, we can simulate night shoots even in the daytime,” he says. “Night shoots used to last until the wee hours with the old ranges, but in the MMRC, we can wrap up by 6.30 pm.”

For soldiers and section commanders on the ground, the MMRC helps hone their senses, as well as footwork and engagement drills, all while carrying loaded weapons. “When my section stacks up outside a door loaded and ready, it feels like we are on a real operation,” says 2SG Leonard Teh, an infantry specialist with the Infantry Combat Training Centre 3, which trains NSmen. “We know the enemy is inside, but we don’t know where they are exactly. Once the mission starts, I can’t pause the situation,” he says. “I have to be sure of what I am doing because there is no second chance with live rounds.”

Back at the MULFAC, the company-level

exercise is winding down. Men and commanders are gathered in the AAR room to watch themselves in action. With the Personal Area Network and Tactical Engagement Simulation systems fitted onto every soldier, equipment and weapon, their exact location, number of rounds fired, hits and misses are all logged in real time. Video cameras installed in the complex that recorded every move now play back to show what a soldier did, rightly or wrongly, behind the bullet-proof walls.

“In the past, live-firing was just live-firing, but soldiers today have video and data to effectively review their performance so they can better themselves,” says MAJ Raihan Husainni, 34, a staff officer in HQ Infantry who was involved in the development of the MULFAC. “Urban operation fighting is a core skill that every soldier must have because of our built-up environment,” he says. “And every facility that increases the confidence and proficiency of my soldiers will be something I want to use.”

[FACING]
A MULFAC building, designed with a viewing gallery so that commanders can observe troops during training.

[RIGHT]
Live firing assault within the complex room layout of MULFAC involves responding to friend or foe targets.





HEAVY FIRE POWER

Alphonsus Chern

Robt, Missiles and Bob

A KEY EXPERIENCE in military training is live-firing, from shooting with personal arms to delivering on target heavy-weight munitions such as long-range artillery, missiles and aerial bombs. Almost all servicemen in combat vocations are involved in one live-firing or another. Live-firings are an important component of SAF training – it gives our soldiers confidence to operate their weapons and to ensure operational readiness.

When the SAF trains alongside other armed forces, including conducting live-firing exercises, we are able to build mutual trust and confidence while establishing a common understanding of each other's operational capabilities.

The following vignettes showcase the live-firing practices conducted in Ex Daring Warrior, Rim of the Pacific Exercise (RIMPAC), and Exercise Forging Sabre.

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In the darkness 15,000 km from home, a lone helicopter churns up a whirlwind of dust as it disgorges a team of reconnaissance troops deep inside "enemy" territory. Carrying nearly their own weight in supplies, they will trudge for hours through the dense scrubland of the Great Plains in the United States of America, build a hide-site close to where key targets might be located, and spend the next few days secretly observing their movements, ready to call for fire on these enemy forces when the opportunity arises. From the

air, Unmanned Aerial Vehicles (UAV) pick out enemy radars and installations with their infrared cameras and relay their positions to an artillery Battery Command Post, where the Fire Direction Officer, a lieutenant, broadcasts this data to a battery of High Mobility Artillery Rocket System (HIMARS) launchers waiting under cover.

This is Ex Daring Warrior 2014, a complex wargame involving the use of artillery, UAV, ground-based radar, Apache helicopters and US F-18 Hornet fighters in the wintry sub-zero temperatures of Fort Sill in the midwestern state of Oklahoma.

CPT Lim Wee Yeow, 28, a battery commander who is taking part in this exercise for the second

[FACING] Ex Forging Sabre 2011: Ground crew prepares to arm an Apache attack helicopter with Hydra unguided rockets.

[BELOW] HIMARS Live-firing in Fort Sill, Oklahoma, USA during Ex Daring Warrior, 2012.



time, has under his command a few launchers and some resupply vehicles – a veritable supply of firepower. “The HIMARS can carry a single pod of six unitary rockets,” says CPT Lim. “Once the targets are confirmed, we can fire all six rockets from a launcher within thirty seconds,” he elaborated.

On the frosty ground, 2SG Daniel Ng, 21, a Full-time National Service Battery Sergeant Major, is surveying the landscape with his platoon sergeants. “In order for our launchers to deploy quickly and safely, we need to know the ground well,” he says. “I need to be the battery commander’s eyes on the ground to gather information, plan the route of advance, and look for hide-sites.”

Preparations for the big exercise began several months ago. Signal sets, jerry cans, charts, tools, and rifles all had to be boxed and shipped to the United States by sea. To protect themselves from the cold, the men were issued microfleece jackets, thermal socks, gloves, beanies, and ear muffs. For the 27 days they were there, the temperature seldom went above freezing. “We had to use heat packs,” recalls 2SG Ng. “And when we had to work outside the vehicle, we kept it short and sharp.” But the soldiers who bore the brunt of the cold were the vehicle commanders who had to stand out of the hatches to guide their drivers with the wind blowing straight at them for the hour-long journey to the deployment ground.

“Fire mission single launcher, over,” comes the Fire Direction Officer’s voice over the radio.

Inside the cold, steel cabin of his launcher, CFC Tan Wei Xiang guns the engine to life. Putting the launcher in gear, he moves off to a pre-determined site and waits for orders from his platoon commander.

“Then comes the instruction to launch. With practised precision, he parks the launcher with the correct heading, in line with the target.

“Arm, over,” says the platoon commander.

The gunner, sitting next to CFC Tan, flips a switch, causing the monitor to flash the words: “Weapon Armed”.

An amber light comes on as the countdown

begins. “Fire at my command, four, three, two, one, fire.”

As the gunner toggles the fire switch, there is a blinding flash of light and a reverberating roar. The vehicle shudders, and is obscured from view by an enormous cloud of dense, white smoke. From the Battery Command Post, the officers see a rocket rushing out of the launcher toward its target over the horizon, the first of 42 that the unit would fire over the next 10 days.

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In the deep Pacific waters off Oahu, Hawaii, ME5 Jeffrey Tan, a Senior Combat Systems Engineer on board the RSS *Formidable*, wakes in his cabin. It is 4 am on 14 July 2012. The sea is calm, a good omen for the big day when the stealth frigate, one of the newest ships of the RSN, would demonstrate its Harpoon missiles before an international audience.

This is RIMPAC, the world’s largest maritime warfare gathering involving over 20 nations, and the RSN was going to put on its best for show.

With a range of more than 100 km, the combat-proven Harpoon avoids radar by skimming just above the surface of the water, punching through the hull of a vessel and destroying it with explosives from within.

For this exercise, ME5 Tan is the designated Harpoon firer. Also responsible for the radar, weapon, navigation, and communications systems on board, he would later press the buttons to send the over-600-kg missile on its way to the target, a decommissioned combat stores ship about the size of a destroyer belonging to the United States Navy.

Pulling on his overalls, he goes to the missile deck where ME5 Lim Choon Kiat, a Naval Systems Warfare Engineer, is already carrying out system checks on the weapon to make sure the firing would go smoothly later that day.

Having sailed for 18 years with the Navy, this was the second time ME5 Lim was taking part in RIMPAC. “We always guard against Murphy’s

[FACING TOP]
A Laser Joint Direct Attack Munitions being prepared for an F-15SG, Ex Forging Sabre 2011.

[FACING BOTTOM]
Combat Information Centre crew of RSS *Formidable*, RIMPAC, 2012.





Law,” he said, explaining how he always assumes anything that could go wrong, would go wrong. “We considered the reliability of the missile when exposed to the marine environment. We checked the radar and the power generators. We even analysed, over the past three years, the types of problems that occurred with the missile to decide which additional spare parts we would carry,” said ME5 Lim.

To keep the missiles in tip-top shape, he and his crew regularly remove the Harpoons from their canisters, strip the wings, and then run a comprehensive test to identify any faults in the components in base.

On this particular day, time is another challenge these two men have to face. Because of the large number of countries participating, each ship is allotted a narrow one-hour window by the Pacific Missile Range Facility for their crew to engage the targets with live weapons. If the opportunity is missed, there will be no second chance.

“I have to make sure my team is competent,” says ME5 Lim. “If anything goes wrong, we need to know what it is straight away, so we can give our commanders time to make informed decisions and come up with alternative plans.”

After a breakfast of bread and butter in the galley, ME5 Tan calms his nerves by making small talk with his crew mates. Finally, word comes from the Pacific Missile Range Facility that it is time for *Formidable* to launch her missiles.

As the Officer-of-the-Watch slowly guides the ship into position, ME5 Tan and ME5 Lim pull on anti-flash gear and take up stations behind the harpoon console in the darkened Combat Information Centre (CIC).

“I am like Jeffrey’s shadow,” says ME5 Lim. “I will check the firing sequence and see that the indicators on the screen are all showing the correct things. My job is to make sure the systems are all okay before the firing.”

“We are going in now,” comes the voice of the ship’s Operations Officer over the intercom. “Time to fire is 1035.”

From the quarterdeck, the thudding of rotors

quicken as a Sikorsky S-70B helicopter takes off carrying a Tactical Coordinator and a Sensor Supervisor who will track the target with radar and electro-optical equipment, providing the ship with real time information on its whereabouts.

“Long Range Missile, plan two Harpoons on Target 0001,” orders the Operations Officer.

In the CIC, the level of excitement goes up a notch. This is going to be a Simultaneous Time-On-Target (STOT) firing, which means that two missiles will be fired and will arrive at the same time with the intent to overwhelm the anti-missile defence of the “ship”.

ME5 Tan gets busy planning the flight path of the missiles. As they fire one after another, he has to plan the course for both missiles so that they will arrive and hit the target at the same time. On his screen in the darkened centre, icons representing each of the eight Harpoon missiles on the ship are glowing green. ME5 Tan selects the missiles he intends to use, and with two clicks of the mouse, confirms the launch.

On the deck, a ball of fire erupts as the missile streaks away from its launch tube into the air, trailing a plume of grey-brown smoke. Moments later, the second missile is on its way. On his screen, ME5 Tan sees two round objects following the waypoints he has mapped out to the target 20 nautical miles away.

The CIC has gone quiet. Every pair of eyes is glued to their own screen, watching the progress of the two blips.

At the half-minute mark, ME5 Tan begins a countdown. “30 seconds. 20 seconds. Ten, nine, eight, seven, six, five, four, three, two, one. All stations, missile end of flight. Report Battle Damage Assessment,” he says.

The radar operators peer at their screens, trying to see if the target is still intact.

On the bridge, several decks above, officers try to spot the tell-tale smoke from an explosion over the horizon.

Then comes the good news from the helicopter hovering above the scene. “We have two hits on target,” says the Tactical Coordinator. Crew

[FACING]
A Harpoon
surface-to-
surface missile.

members thump ME5 Tan on the back.

“I felt elated,” he recalls. “You’re lucky if you can participate (firing a harpoon) just once in your lifetime. I fired both of them – it’s like striking the lottery twice.” he says.

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Twenty thousand feet over the Arizona desert, two RSAF F-15SG multi-role fighters streak through the air at over 400 knots. Each aircraft can be equipped with four AIM-120 long-range air-to-air missiles, 12 Laser Joint Direct Attack Munitions (LJDAMs), and 500 rounds of high-explosive shells in the Vulcan six-barrel cannon used for air-to-air combat.

Strapped into the back of the two-seater jet, Weapons Systems Officer (Fighter) [WSO] CPT Kenny Poh is listening for instructions from the Joint Terminal Air Controllers (JTACs) on the ground, who are spotting targets for his aircraft to engage.

“Shikra One, this is Sandhog,” comes a metallic voice over his radio, using their unique call signs for the mission. “High-value target moving North to South on alpine route.”

His adrenaline surging, CPT Poh rapidly keys the target coordinates into his Up Front Control, a panel which coordinates communication and navigation functions for the aircraft. It also enables the coordinates to be passed to the SNIPER, a targeting pod mounted under the fuselage that uses a forward-looking infrared and video camera to track moving targets.

This is Ex Forging Sabre 2013, a biennial live-firing exercise involving 700 airmen and soldiers – commandos and artillery units from the Singapore Army, and several types of aircraft from the RSAF in the vast expanse of the Barry M Goldwater Range in the United States.

From his concealed position on the desert floor, the JTAC watching Vehicle Alpha feeds CPT Poh additional information on the target, a remote-controlled red Toyota Corolla.

“Shikra One, you are cleared to attack the

vehicle from the south,” says the controller, giving the WSO permission to destroy the car.

CPT Poh locks on to the target and passes control of the release to his pilot in the front seat in a procedure known as Tactical Crew Coordination. “Captured, cleared to release” says CPT Poh to the pilot, giving him the go ahead to drop the bomb.

The pilot in the front seat, MAJ Tan Ngee Yong “pickles” (an air force jargon for pressing) a red button on his flight control stick, and both men feel a jolt as the 500-pound bomb is released.

The next 40 seconds are crucial for both men in the cockpit of the 25-tonne aircraft, now inside “enemy-controlled” territory. In actual combat, airborne interceptors could disrupt their attack run at any time, forcing them to abandon the strike. Man-portable-air-defence systems, a type of shoulder launched surface-to-air missiles that are almost impossible to spot, can shoot them down. MAJ Tan, a 14-year veteran in the Air Force, has his work cut out for him. “I have to fly in a stable manner, watch for threats, and maintain a heading which gives the WSO a direct line-of-sight to the target,” he says.

There are also other considerations in this exercise. “I have to stay within the range safety template in case the bomb fails. That way, it drops within the safe zone and will not harm anyone.”

Having flown the F-16C/D Fighting Falcon since 2004, he was one of the first pilots selected by the RSAF to train in the newly-acquired F-15SG Strike Eagle in 2009. With 2,500 flight hours, he is now the Officer Commanding (OC) of a squadron, responsible for the welfare, morale, and training of other pilots.

In the hot seat, he has to keep the aircraft steady while the WSO guides the bomb with the targeting pod. “The moment the weapon left the aircraft, I felt the stress,” says CPT Poh. “What if the vehicle swerved? What if the weather ahead blocked my line of sight?”

According to CPT Poh, who has seven years of experience on the job and 600 hours on the F-15SG, the key to a successful pilot-WSO relationship is

trust. “In an air-to-ground attack, the WSO is on the offense and the pilot takes care of defence,” he explains. “I have to trust that the pilot will fly the correct parameters and take care of aerial threats in order for me to engage the target.”

MAJ Tan agrees. “As I am flying, I listen in to what the WSO is doing,” he says. “I trust that he will find the correct target and also satisfy the rules-of-engagement, which means there are no schools, hospitals, religious or civilian buildings nearby – and then I check it all again to be 100 per cent sure – there should not be any doubt in my mind when I release the weapon.”

As the car moves down the dusty road, the bomb whistles out of the sky and blows it up. Shards of torn metal and broken glass scatter in all directions. “I saw a bloom of dust on my monitor, and the vehicle appeared to stop moving,” said CPT Poh, referring to the image on his infrared screen in the cockpit that implied a successful hit. “Shikra One, target splashed,” he announced into his radio – vehicle destroyed.

As the SAF weaves more complex equipment into its integrated overseas exercises, training and preparation become more critical to the safety and success of these war games. With weapons projecting such immense firepower over increasing distances, every detail in the execution of a launch counts.

“You are exposed to tough conditions and fatigue and you still have to meet stipulated timings,” says CPT Lim. “You have to check that every digit entered is correct because the impact of the round has a physical result.”

The complexity of these weapons systems also means that the final responsibility of pushing a button no longer rests on the shoulders of just one person. “Live-firing is a team effort,” says ME5 Tan. “Engineers have to ensure there is power for the systems to operate, Command and Control has to continually feed the target data, the navigators have to keep the ship in the right place.”

To operate these machines, keeping in shape is a must. “Aside from the day-to-day flying, we have to condition our bodies in the gym,” says MAJ

Tan. “We run, we get sufficient rest, and we need the moral courage to sound out if we are not ready for a flight. Every time we fly a mission, we have to make sure we are 100 per cent ready for it. We don’t take chances.”

*

Many servicemen have participated in previous Exercise Daring Warrior, RIMPAC and Exercise Forging Sabre although few would have the chance to fire the HIMARs, launch a harpoon missile or drop a 500-pound bomb. However, in the big picture, knowing that Singapore has such fire power and capability gives the foot soldier the confidence that, if push comes to shove, the SAF’s Integrated Warfare approach will cover his efforts even as he aims and fires his own rifle.

[BELOW]
An F-16 Fighting Falcon ready to drop its 2,000-pound payload on an enemy target, Ex Forging Sabre.





KEEPING FIT

Yeo Suan Futt

Individual Physical Proficiency Tests

FOR A MEMBER of the armed forces, whether as a Regular or a national serviceman, physical fitness is the most basic competency at the individual level; everything else is built upon this, from combat fitness, physical endurance to vocational expertise. Indeed, the Individual Physical Proficiency Test, also known as the IPPT, is not only taken by every medically fit member of the SAF, it is also the benchmark for other uniformed services, including the Singapore Police Force (SPF) and Singapore Civil Defence Force (SCDF), as a test of physical fitness and basic motor skills.

Over the years, as the SAF modernised in terms of equipment, structure and operations, the conduct and testing of physical fitness have also been tweaked and refined in parallel.

When National Service was instituted in 1967, the physical fitness test included a 4.8-km run that had to be completed in 30 minutes, and a 9.6-km run to be completed in 70 minutes in Skeletal Battle Order. It wasn't till 1979 that this was replaced by the IPPT which comprised five stations – push-up, sit-up, chin-up, half-knee bend and 2.4-km run – undertaken wearing vest, slacks and boots.

The half-knee bend component was removed in 1981, and the following year, a revised IPPT adapted from the test protocol developed by the Singapore Sports Council was introduced. Comprising sit-up, standing broad jump, chin-up, 4 x 10-metre shuttle run and 2.4-km run, it was taken in PT kit (vest, shorts and running shoes). “Wearing PT kit made us feel incredibly light and once you get your fitness and cardio up, you felt

like you could fly – at least until you started doing tuck jumps and broad jumps and landing on your heels with those ‘ballet shoes,’” recalls SSG (NS) Sng Khoon Heng, who was enlisted in 1984. This IPPT format would be the one most servicemen are familiar with, being in use for the next 30 years.

While the basic IPPT format remained unchanged for three decades, its management was refined continuously. Designating accessible test venues, scheduling training sessions and increasing monetary awards for excellence helped to improve pass rates and results. Moving in sync with widespread adoption of digital technologies, a mobile app for smartphones was even introduced in 2013 that was designed to be a serviceman's complete fitness companion, short of being an exercise buddy. With the MyIPPT app on their phones, servicemen can book IPPT, IPPT

[FACING] Midshipmen keeping fit at sea.

[BELOW] Recruits waiting their turn at the pull-up station, one of the five in the old IPPT format.





Preparatory Training (IPT) and Remedial Training sessions, set fitness targets, search for exercises to aid in achieving these targets and track their progress. It even has a chat feature for organising training sessions with mates, and is plugged into social media for sharing. Commenting on the app, LTA (NS) Brian Higgs says, “With the MyIPPT app, every time I want to book a new IPPT or IPT session, I now have everything at my fingertips, including booking mechanism, past IPPT results, and even a nifty Body Mass Index calculator and weather forecast. And it works a lot faster than the website too!”

Training too has evolved. Where IPT sessions used to be centred on IPPT exercises, it now incorporates a wider segment of workouts, such as kick-boxing. Classes have also been made smaller (from 50 to 30 per class) and the duration cut from 120 minutes to 75 minutes.

Over time, it is only natural that IPPT itself would be reviewed to ensure that it remains relevant and effective. The first major change to IPPT in 30 years was announced in late 2013. To be implemented in phases from 2014, the new system is much simpler, comprising just three stations: Push-up, sit-up and 2.4-km run. Scoring has also been simplified to a 100-point scale, with the run accounting for 50 points and the other stations for 25 points each. To better factor the impact of age on physical fitness, the age band is now three years as opposed to five. The new IPPT format fits in well with the SAF’s holistic fitness programme, working in tandem with a revised combat fitness training and test regime implemented over the past few years.

The IPPT is now simpler, but it does not trade rigour for simplicity. More importantly, a significant advantage of the new format is how it has enabled the individual to be responsible for his or her physical fitness. Says Chief of Army MG Perry Lim, “Our servicemen will still need to train to pass IPPT. To achieve Gold and Silver will be just as challenging as before... with fewer stations, our servicemen can train for IPPT on their own without the need for specialised equipment.”

**THE NEW IPPT FORMAT
SIMPLER,
YET EFFECTIVE**

Fitness is an important element of soldiering. The SAF constantly reviews its training system, including physical training regimes and physical fitness tests, to ensure that they are relevant and effective. Starting from 1 Sep 2014, the SAF will launch a pilot implementation of a new and simpler Individual Physical Proficiency Test (IPPT) format, which will be accompanied by a new scoring system. This simpler test format will further motivate our servicemen to take greater ownership of their fitness.

The New IPPT Format

- PUSH-UP**
Standard 1 minute
Max: 25 points
- SIT-UP**
Standard 1 minute
Max: 25 points
- 2.4km RUN**
Standard 12 minutes
Max: 50 points

GRADE	TOTAL POINTS REQUIRED
PASS (Silver)	>50 points
PASS (Bronze)	>40 points
PASS (Gold)	>30 points
SILVER	>70 points
GOLD	>80 points
GOLD (Distinction)	>85 points

New Scoring System

The SAF will introduce a new scoring system to accompany the new IPPT format.

For each station, the score will be awarded based on a maximum of 100 points. The overall score is determined by the total score from the 3 stations as opposed to a passing score for each station. However, servicemen must obtain a minimum score at each station. The new scoring system will encourage servicemen to do their best for each of the stations.

Active servicemen will continue to be held to a higher passing standard because fitness remains a part of their work and training regimen. The new scoring system, Commando, Officer and Guards appointments, will continue to be held to a higher standard.

[PREVIOUS]
2nd Gen
servicemen
doing push-
ups in vest and
slacks.

[ABOVE]
The IPPT format
introduced in
2015 has three
stations, and the
gold standard for
NSmen needs
more than 80
points.

[FACING TOP &
BOTTOM]
Standing broad
jumps are no
longer part of
IPPT, but sit-ups
remain in the
format.





PT SHOES

Vo San Fu



[TOP] PT shoes are part of the full-battle order.

[ABOVE] The standard issue PT shoes for servicemen of the 1960s to 1980s were thin-soled and made of black canvas.

Archival pictures of the first batch of NSFs on their inaugural run show them wearing all manner of footwear, including flip-flops.

So it must have been with great joy when proper regulation physical training (PT) shoes were first issued. They were thin-soled black canvas gymnasium shoes, and thus quickly dubbed kungfu shoes. The flat rubber soles were uncomfortable by today's standards, unforgiving to those with flat feet, and wore out quickly. Of course being black, it invited corporals and sergeants to insist that they be cleaned top and bottom and polished to a light shine for stand-by-bed.

After three decades, the SAF launched its first overhaul of PT shoes in 1995, introducing running shoes from New Balance, then ranked as one of the top six best-selling footwear brands in the world. There must have been a collective sigh of relief from servicemen as the shoe design featured netting which made polishing impossible. There must also have been countless pairs of happy feet.

In 2004, a Brooks sports shoe was made available to SAF servicemen in addition to the New

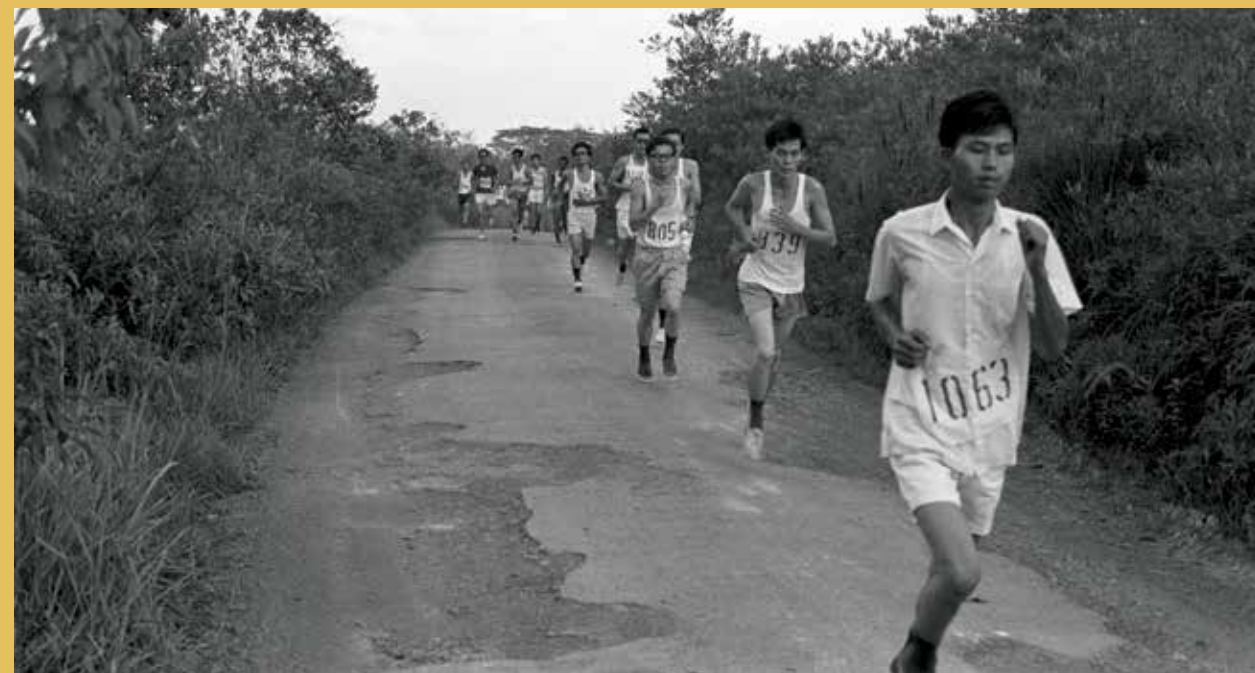
Balance choice.

In line with the SAF's transformation into the 3rd Gen fighting force, the lighter, more durable and more shock-absorbent Asics shoes replaced the New Balance and Brooks models from August 2011. To ensure that the quality of the shoes is commensurate with the physical activities undertaken by servicemen, many user trials were conducted by the Army Personal Equipment Expert Team of warrant officers beforehand to ensure good fit and performance.

Grace Heng Lek Thian, then Head Physiotherapist, HQ Army Medical Services, explained the significance of the switch: "Running is one of the core activities in our Army. To prevent running injuries, one must not only train well, but also be equipped with the right gear. These newly-selected SAF running shoes will cater to a wide range of foot types – adequate heel control and arch support shoes for mild flat feet or well-cushioned shoes for high arch feet."

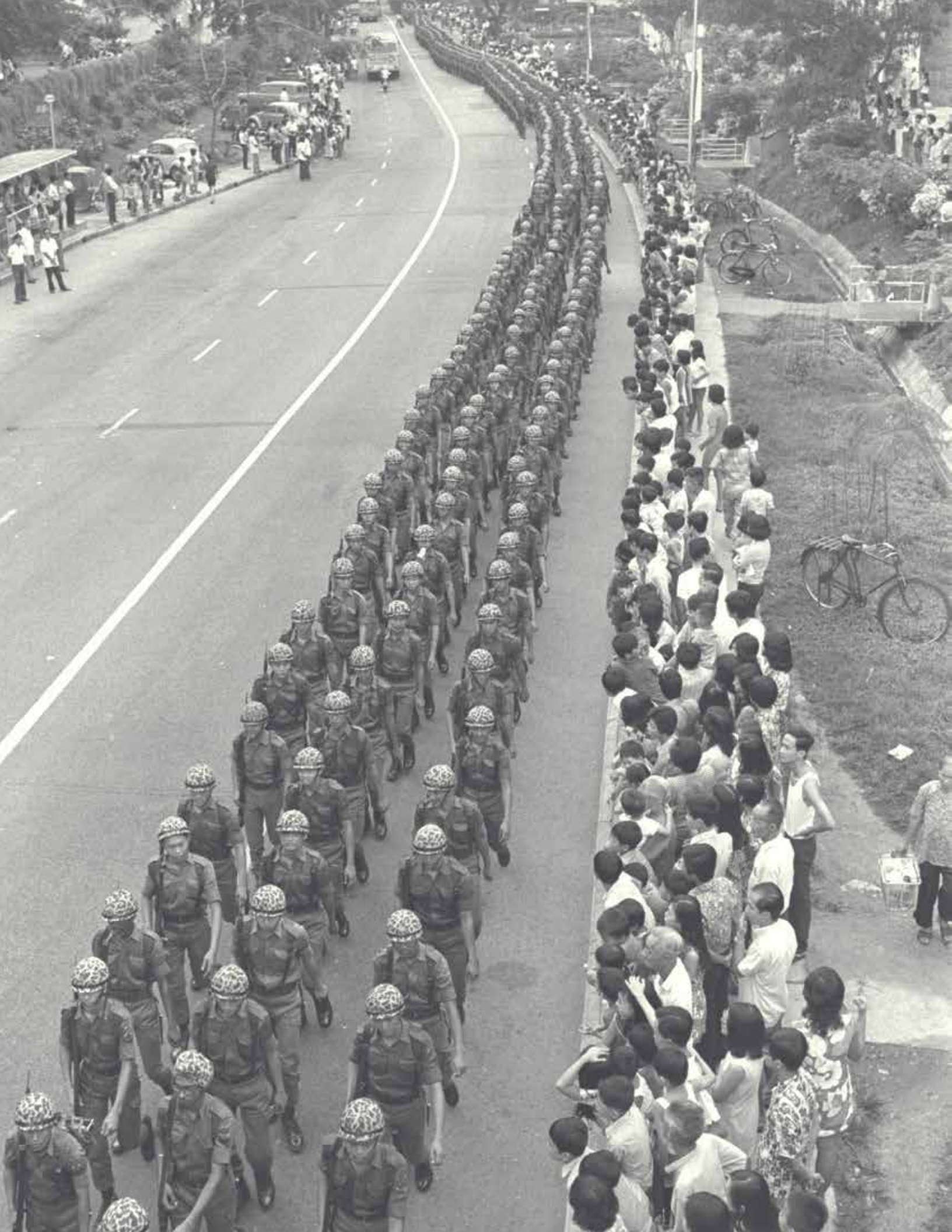
On 24 August 2014, Defence Minister Dr Ng Eng Hen announced via a Facebook post the next change of PT shoes. Accompanying pictures of the old and new models of running shoes, he wrote: "Like most of you, I was delighted with the Asics shoes... They were high quality and have given me many hours of happy walking and jogging. More good news for NSmen. The next set of running shoes will be from Adidas and Zoot..."

Issued to servicemen in December 2014, this new generation of PT shoes is the result of the SAF and relevant agencies keeping an active watch over the latest running-shoe technology to select the most suitable off-the-shelf footwear to protect servicemen from injury while enhancing their performance.



[ABOVE] Minister for Defence Dr Ng Eng Hen running with recruits in SAF-issue PT shoes, 2011.

[LEFT] First batch of NS recruits on a PT test, 1967.



ROUTE MARCH

Benjamin Lee **Troop Marbing**

WITH COMBAT BATTALIONS becoming increasingly motorised, there are other more efficient ways to move infantry around these days. Still, there will be times, depending on the terrain and nature of operations, when movement of troops needs to be done on foot.

Thus, the route march, both for practical relevance and as an exercise in physical and mental endurance, is an integral part of Basic Military Training (BMT) as well as the routine of operational combat units. Many NS units plan route marches as part of their In-Camp Training (ICT) programmes to also serve as exercises in cohesion so that the troops re-acquaint themselves with one another, and hopefully work better together in the training modules that follow. Catching up on one another's family lives melts the time and distance like nothing else, and since my unit has covered up to 16 km of "orientation" route marches during ICTs (along with other training activities we did together), I have come to know my fellow soldiers better.

But of course, new recruits to the Armed Forces are introduced to the route march with "baby steps", beginning with a 3-km one in "vests and slacks" instead of full battle order complete with field pack and weapons. Too soon, they are acquainted with the physical discomfort known as chafing, as everything that was hitherto the right size gradually becomes uncomfortable as seams get pressed into skin by the weight of one's load.

Speaking of equipment, there is of course



the "stand-by" inspection of one's field pack to ensure that the full complement of personal items has been accounted for and packed. While 15 kg doesn't sound like much since it goes under most airline check-in baggage weights, lugging this around for 24 km in eight hours does require some endurance.

If you haven't been physically conditioned, nourished and hydrated, you are going to suffer the worst muscle cramps from the toes all the way up your back.

But then there are the songs and cheers you've been taught throughout your BMT, used on shorter marches and runs to maintain cadence, and according to some instructors, help you build your endurance by increasing your lung capacity.

They also boost your morale and take your mind off the discomfort of the heat, the blisters

[ABOVE] PDF troops begin a 21-km route march competition to mark the end of the PDF training season, 1967.

[FACING] 3SAB on the route march after the National Day Parade, 1973.



[RIGHT] Point men at a rest stop of a route march, 1967.

forming on your feet and sometimes the rain which makes your waterlogged uniforms and equipment feel like a ton.

Today, the route march is made more symbolic by the Army as the penultimate event before the BMT Passing Out Parade (POP).

Before 2010, the BMT graduation route march would pass the various BMT locations, such as on Pulau Tekong or the School of Basic Military Training at Nee Soon Camp. But in a move that makes the route march even more significant, every POP began to be held in the mornings at the Floating Platform on Marina Bay, the site of many National Day Parades.

This means having the recruits march through the night from Changi Ferry Terminal. Holding it on the mainland and in public areas allowed for two things: an appreciation of the people, places and things the newly-trained soldier was going to protect in his capacity as a serviceman; and for some parents and friends of recruits the chance to attend the parade or wait along the route to catch a glimpse of their loved ones in green.

The significance of the BMT route march goes back to the Japanese Occupation of Singapore in WW II, when prisoners of war – locals and allied soldiers – were made to march from the city to Changi. Many of them died on the beaches there. This was a march of defeat. The BMT route march

from Changi to Marina Bay is a reminder to never allow that to happen ever again. It is a march of victory.

It is noteworthy that before this graduation march, the recruits would not have been tested across this 24-km distance. There would be a mental barrier to overcome as well as the physical. There's also the odd phenomenon of soldiers nodding off to sleep while marching, the cadence lulling them into slumber. None stay asleep of course – since their stumble would jolt them awake.

Close to the end of the march, the bright lights of the city illuminate the route. But just as morale is boosted by the end being in sight, the recruits are faced with the daunting flights of stairs that will take them up to the pedestrian path on top of the Benjamin Sheares Bridge. Once there, they find more wind in their sails as the skyline of Singapore's financial district welcomes and acknowledges them as new guardians.

There is a palpable change in the recruits as they arrive at the end point, congratulating one another on completing this feat. It shows even more as dawn breaks, when they march onto the Floating Platform for their Passing Out Parade, greeted by their cheering families. Whatever doubt they might have had about being *bona fide* soldiers would now surely be no more, having been discarded everywhere along the 24 km before.



[ABOVE] BMT recruits marching to and from training areas in Pulau Tekong, 2014.

[LEFT] Recruits on their POP route march ascend to Benjamin Sheares Bridge from East Coast Parkway.

[OVERLEAF] Recruits holding their drink parade at a spot with an iconic view before their POP.





OBSTACLE COURSES

Benjamin Lee

Over, Under, and Climb

THE STANDARD OBSTACLE COURSE (SOC) is lauded for instilling confidence and combat fitness in servicemen. It is also dreaded by many. Foolish soldiers are tempted to resort to such tricks as loosening the cap of water bottles so they leak and get progressively lighter during the run, or removing the bolt carrier group from the rifle so that its weight is some 80 g lighter. But those risking getting into serious trouble when these tricks are discovered learn that they can't get past their instructors who are experienced soldiers.

The SOC demands from each soldier the quartet of coordination, confidence, stamina and strength. You could do well completing a 2.4-km run, but when decked out in full battle order, personal weapon, one full water bottle and one water bag, you could have the wind knocked out of you by the time you get to the low rope.

Speaking of which, the low rope is where you perform a feat of skill and strength: you levitate yourself on the power of your arms and at the same time, with your left leg bent at a 90-degree angle, you use only your boot-clad feet to lay part of the low rope over the top of your left boot, and then with your right foot, step on that portion of the rope, straightening both legs so that you travel up that rope like a professional circus performer! Repeat and rise till you get to the top and triumphantly slap the cross bar before shimmying down.

The redesigned SOC takes into consideration a more urban combat terrain, with twelve stations comprising simulated windows, doors, tunnels

and corridors for the soldier to build up lactic acid in the limb muscles.

They may have taken the concertina wire out from the bottom of the ramps – because soldiers would have practised their other skills of breaching such obstacles by stealthy snipping or overt explosions – but classic stations like the low wall are not low for someone who is “vertically challenged”. Then when your legs are already wobbly, there are balancing bridges and the dreaded Jacob's Ladder for the acrophobic to contend with.

Finally, there's a 300-metre rundown to run down, and this is one instance where the phrase “so near yet so far” comes to mind. Your full battle order has somehow become heavier, as your mind begins playing tricks on you: someone is tugging

[FACING]
Negotiating
an obstacle no
longer found in
the new SOC.



[LEFT]
The window
obstacle in the
new SOC.



on your rifle that's slung behind you; your boot laces have become undone on the left side, and oh no, why didn't you check to make sure your helmet chinstrap was the right length on both sides?

And then there's the noise: your fitter platoon mates will exhort you to keep pushing on. The unrelenting instructor runs alongside asking you to stop dragging your boots, stop looking skywards and focus on the finish line.

Of course you can't hear a word anyone is saying because the only sounds you're conscious of are those of your laboured breathing and pounding heartbeat. Your sweat sears your eyes and you can hardly see in front of you, but you keep going ahead until finally you cross the line, amazed that you have successfully completed this series of torture.

And if you think this is tough, there is a hardy bunch of servicemen called the Naval Diving Unit, who do a different SOC called the Sea Circuit. Donning their wetsuits, the divers swim on their backs alongside the jetty, haul themselves up a 3-metre rope, dash across a balance beam, put on flippers, jump off a tower and swim backstroke to shore. Plus, they have to do it three times to complete a "circuit" – all under 18 minutes. Add to that a naturally-occurring variable called a tide, which determines how high the diving tower is



from the cold sea below.

But shouldn't all this be "no sweat" to fit soldiers and sailors? On the contrary, the obstacles of the SOC in its various forms are designed to test limits and there is nothing to laugh about. The only smile this story brings is to the lips of whoever perversely included the word "Standard" to the name of this deliberate challenge.

[ABOVE] The new SOC, introduced in 2010, has 12 obstacles, seven of which are new stations.

[FACING] The Balancing Bridge remains unchanged in the new SOC while the leap over barbed wire has been removed.

[LEFT] The Tunnel trains troops to crawl in confined spaces.





JUNGLE CONFIDENT

Koh Boon Pin

**Living and Fighting
in the Rainforest**

ABRAHAM MASLOW in his famous hierarchy of needs states that the most fundamental for any human is having his physiological needs met, without which his body cannot function.

We're talking about air, water, food, clothing, and shelter. Take that away and anyone's survival will be severely tested.

The Jungle Confidence Course is where infantry cadets in the Officer Cadet School come face to face with this test.

Conducted in the 23rd week of their officer cadet training, the young men and women go through a nine-day trek in the jungles of Brunei, where the days are blazing and the nights are so dark, you cannot see your hand stretched out in front of you.

There, in the dense rainforest, they will be pushed physically, mentally and emotionally, such that it would make their earlier jungle training experiences in Singapore seem like a walk in the park.

Quite unlike the gentle slopes of Mandai or Bukit Timah, the Bruneian terrain throws two challenging climbs at the cadets. One involves an onerous five-hour climb (occasionally on all fours) to reach the top of a mountain.

It's clearly no weekend hike. Not when each soldier has to carry a 20-kg load on his back and constantly watch out for thorny vines which he might inadvertently grab in his bid to hoist himself up the slopes. Furthermore, careless navigation might result in having to retrace his steps (no laughing matter when one is leading a group of

hungry, tired soldiers).

Cadets dig deep into their mental reserves, either mustering their inner cheerleader as they encourage each other on with every new knoll faced, or imagining they are carrying loved ones on their backs like their lives depended on it.

Their adventure doesn't end when they reach the summit. After they descend, two more challenges await them – a river crossing before a three-day-two-night survival test where they have to live off the land without any replenishment of food or water from base camp.

Despite their spartan dips into their two days' worth of combat rations which they started with six days ago, the food will have run out by this point. They have no choice but to start foraging

[FACING]
Commando vocational training includes weeks of jungle training.

[BELOW]
An instructor demonstrating how to start a fire, a survival skill taught to SAF trainees.





for worms to use as bait in their attempts to catch fish in the nearby river – which they do if they are very, very lucky and very, very patient.

No wonder then that all squeamishness is cast aside when they are presented with a quail each by their jungle training instructor as another test of their survival skills.

After a brief moment of lulling the birds into hypnotic stupor, the cadets snap their necks, pluck their feathers, remove their innards and compete to see who makes the most delicious jungle quail stew. (By this time, of course, anything warm and fresh would taste great!)

It's in moments like these, when food is experienced in its raw, back-to-basics form, that they start to miss all that they are accustomed to back in Singapore – their family, their home, and yes, their home-cooked food.

On the second last day of their nine-day test, each cadet gets assessed on their demonstrated survival skills. Whether it is the quality of their

individual shelters and animal traps or their weapon maintenance while out in the jungle. Marks get accumulated (or deducted) before the soldiers embark on their final challenge – trekking back to base camp before nightfall.

Though their bodies are sapped, their morale is high. They express new-found gratitude for parents, siblings and loved ones, and the prospect of reuniting with them upon their return to Singapore brings some to the brink of tears.

When they make it back to camp, they are congratulated by their commanders with an icy canned drink and a sweet bun as a reward for crossing the threshold. An achievement badge is stuck onto their uniforms with a macho punch to their chest.

They celebrate the triumph of their resilience and spirit, that despite their fatigue, they have hidden wells of energy to draw from, that nothing is impossible when they set their minds to it.



[FACING]
To survive in the jungle you may have to drink snake blood and even eat the snake.

[LEFT]
Minister for Defence Dr Ng Eng Hen being shown the jungle kitchen built by officer cadets during their confidence and survival training, 2011.

[BELOW]
Moving tactically along a jungle stream.





AIRBORNE READY

Koh Boon Pin Paratrooper

ANYONE WHO HAS EVER done a bungee jump will know it's a leap of faith. Anyone who wants to do a parachute jump will know it's a LEAP OF FAITH.

The roar of the Chinook is deafening. The wind at its gaping mouth is howling. It's a thousand-foot drop to the ground. Green on. Go!

Falling at 230 kmh, it's a relief for first-timers that their parachute is deployed automatically upon their exit from the plane. That's one less thing to worry about.

Still, the jumper does a three-second count – "one thousand, two thousand, three thousand" – then looks up to check that his canopy has not become entangled. In the unlikely event that it has, he has less than five seconds to deploy his reserve parachute.

Welcome to Airborne Country.

Each batch of trainees has to first get medically certified, then pass a demanding fitness test. After that, about 160 aspirants embark on weeks of intense training: chin tucked into chest; legs and feet together; elbows by the side; hands on reserve chute on waist.

The drilling is repetitive but crucial for the jumper's safety. Which is why they get trained to fall in six different directions so they can react accordingly on the day of their jump.

Basic Airborne Course trainees spend three weeks learning static line parachuting, where a cord attaching jumper to aircraft pulls open their parachute when they jump out.

Since 1974, when the Parachute Training Wing at the School of Commandos was set up, thousands have been trained in the art of jumping out of aircraft at 300 m purposefully.

For a full 13 days before they even get near an aircraft, trainees learn how to wear their parachute gear properly, how to break their fall from varying heights, and practise emergency procedures such as how to untangle parachute strings which have

[FACING] A trainee leaps out of the aircraft. In a split second, the static line will open his parachute.



[LEFT] Airborne troops emerging from a transport aircraft.

become criss-crossed.

Again and again, day after day, the drills are rehearsed until they become so ingrained, jumpers can execute them no matter what type of aircraft they find themselves in.

In the past, it was off to the four-storey tower at Hendon and other camps for a jump which simulates the sensations they will experience as they fall and land. Now, Basic Airborne Course trainees head to the brand new Airborne-Trooper Training Facility (ATF) instead.

Plans for the state-of-the-art ATF began in 2008, with the SAF and DSTA studying other airborne training schools before commissioning its own design. The result is a facility where, for the first time, aircraft exit, landing and wind speeds, and landing conditions – all programmable – are

contained in a single system. Each jump off the 11.2 m-high platform while rigged to the ceiling simulates a two-minute descent.

Instructors have to be completely convinced their charges are able to maintain their cool and composure during the jump, that they can control their canopy during their descent and make appropriate decisions quickly should contingencies arise. Only then do they give the nod for their first live jump.

By this time, the trainees will have gone through two weeks of drilling and they are understandably excited. Though the roaring engines of the plane are nerve-wracking, the presence of the jumpmaster is assuring as he places his gloved hand on each jumper's back.

The red light comes on. Then it turns green. Each jumper stands at the edge of the sill momentarily before leaping into the beyond.

It's more than just a physical leap. The jumper has just made the transition from trainee to operational jumper. He's grown in confidence to conquer his fear and any challenge that is thrown his way.

Despite his euphoria, discipline dictates that he remains alert to his situation, that he maintains a safe distance from his fellow jumpers to not collide into them on their way down.

He's in control though the ground hurtles toward him at 5 m per second. He finally lands and immediately throws himself into a sideways roll to spread the impact of the drop. If it's a windy day, he moves even faster to release his harness straps or face the ignominy of being dragged by the wind across the ground.

He's just had the experience of a lifetime.

This, of course, is just his first jump. Non-Commando personnel have to complete three jumps (including one at night) without combat gear to earn their coveted silver wings. Commandos do two more with combat equipment weighing more than 15 kg. Their wings have a red velvet backing to distinguish them from the others.

Whatever their vocation, they are one of the elites of the SAF. They are all Airborne!



[LEFT & BELOW] The Airborne-Trooper Training Facility at Pasir Laba Camp has stations designed to give more realistic, effective and efficient airborne training, including exits, parachute control and landing.

[RIGHT] The Red Lions, the SAF parachute team, is a crowd pleaser at the National Day Parade.





PILOT TRAINING

Koh Boon Pin **The Sky he Lived**

BEING A PILOT is like being in a dream. It's wonderful, a little fantastical, but also a little unreal. But for some, dreams do come true.

It begins with an aspirant raising his hand to take on what will be a long, long journey for which there are no guarantees – only a glimmer of hope that one day, you will have someone pinning on your chest a badge proclaiming that you've become a pilot.

In the Republic of Singapore Air Force, the journey begins with a three-stage selection, beginning with a five-hour test gauging your psychomotor skills, spatial awareness and ability to multi-task and make decisions.

After that, a medical to make sure that, among other things, any deficiencies in eyesight are not too severe and are correctable. (Oh, if you're taller than 1.9 m, perhaps you should re-direct your dreams to become a model instead.)

If you pass the third stage comprising an interview with a panel of officers, you get to sign a 10+2-year contract. (The 10 is the bond that comes after two years of training to become a pilot.)

Then the training begins.

It may be six weeks of ground-zero learning, but the trainees are off to a flying start as the Air Grading Course is conducted in Tamworth, Australia. While the thought of overseas training is a dreamy one, the aspiring pilots awaken each day to a harsh reality – that they can get chopped anytime.

They learn the ins and outs of a CT-4B single-



[FACING]
RSAF Bell UH
helicopter pilot
prepares to take
off, 1992.

[ABOVE]
The RSAF, soon
after it was
renamed from
the Singapore
Air Defence
Command,
acquired A-4
Skyhawks in
1973.



propeller plane in a classroom on the ground – how to handle one, its operating procedures and its limitations. But the real test comes when they fly the aircraft.

Somewhere between grappling with a restrictive helmet, concentrating through the drone of the propeller and paying attention to an instructor giving instructions, they are supposed to fly a plane in a cockpit not fit for the claustrophobic.

It's very stressful, to say the least, but it starts to screen out those who don't have the right stuff. Airsickness is the norm. (Imagine being in a tiny plane going through loops and barrel rolls.) After three flights, those who can't manage their bodily protestations from all the aerobatics get the chop.

While the perception of piloting is that of a

lone operator, the trainees discover early on that it would be very difficult to complete the course through their own effort. Everyone becomes a good buddy, sharing his individual experiences with the rest of the group in order to accelerate their learning process.

With stage one done, the pilots-to-be get to breathe a little more easily for two months when they enter Officer Cadet School for their service term, learning more about the Air Force and life skills such as survival in the jungle (handy if they eject from a plane and find themselves in one). Foremost on their mind, however, is preparing for their next training platform – a PC-21 turboprop trainer aircraft.

Next, in Pearce, Australia, the Basic Wing Course is when the trainees experience what is



[FACING]
Opening of SAF
Flying School,
Tengah Air Base,
1 August 1969.

[ABOVE]
Pre-flight
inspection of an
AH-64D Apache,
Ex Wallaby, 2007.

[RIGHT]
An Air Defence
Artillery operator
guides an I-Hawk
loader with hand
signals.





[ABOVE]
 RSAF F-16 and
 AH-64D Apache
 at the Singapore
 Airshow, 2010.

[LEFT]
 Old formation
 patch of the
 Black Knights
 aerobatics team.

possibly the most significant milestone in their fledgling career – flying solo.

It's a memory that is comparable to that of earning their wings at the end of their two-year training. But for the moment, fellow course mates celebrate this rite of passage by dousing each successful trainee solo pilot with rotten eggs and other foul stuff!

Indeed, the moment calls for celebration because they are another flight closer to their final handling test – when they fly with the commanding officer to demonstrate their competence.

Meanwhile, they absorb all they can about the practical flying skills required of a military pilot – navigation, flying with instruments, flying visually, flight manoeuvres.

At the back of their minds – the ever-present spectre of Captain Chop constantly on the lookout for those who can't multi-task, who can't think beyond the classroom, who make unsound decisions or, worse, freeze in mid-air.

Naturally, it helps to be able to tolerate gravitational pull. (1G is what we experience on the ground and 3 to 4G is what we feel on a roller coaster. An F1 driver can experience up to 5G, while for a fighter pilot, it can go up to 9G.)

It's no wonder that trainees use jokey lingo to lighten their days. Someone who cannot juggle listening to radio comms, handling other air traffic and flying at the same time is "maxed out". Someone who is unable to anticipate two or three action steps ahead is "behind the aircraft". A really *terok* trainee is one who is "still on the runway".

Those who do demonstrate sound airmanship get to spend their 21st birthday in Australia. It marks their independence day, their crossing of the threshold into adulthood. For no child is about to be put behind the controls of a multi-million-dollar flying machine, be it a fighter jet, a helicopter or a transport aircraft.

This is when the surviving lot of trainees, based on their aptitude and performance, find themselves streamed for the advanced phase of their training to become a full-fledged pilot.

For them, dreams have come true.



[ABOVE]
 The ground crew
 of 149 Squadron
 prepares to arm
 an F-5 fighter
 aircraft.

[LEFT]
 RSAF AH-64D
 Apaches flying in
 formation,
 Ex Forging
 Sabre, California,
 2005.



TRAINING SAILORS

Koh Boon Pin

Going On Sea

ASK ANYONE who is serving his NS in the Navy and it would be an unusual serviceman who doesn't feel he's special. This is because, of those who get called for NS in a year, only a small percentage get selected for the Navy after they complete BMT.

It's then that they begin a new round of training, one which could range from six months to a year depending on their posting. It's through this Basic Specialisation Course that the infantry-trained soldier becomes "navalised".

To do this, the Navy focuses on what they term as the "Three Cs", namely Competency, Confidence and Commitment, all in a bid to help them connect their head, their heart and their guts to a life on the high seas.

Competency is being equipped with vocational and functional knowledge, a mixture of technical know-how and common sailor skills. The word "common" might suggest these skills are things that everyone knows, but Navy newbies learn that something as basic as walking on board a ship is not as straightforward as one may think. So, they end up gaining newfound respect for something, indeed, as common as staircases and the importance of always having three-point contact when using them to minimise the potential of accidents and injury during choppy waters.

Indeed, shipboard safety is so vital that mastering fire-fighting and damage-control skills in emergencies is paramount. Thus, off they go to the Civil Defence Academy to train for a week on how to fight a real fire, individually, and as a team.

[FACING]
An RSN sailor
lowers the state
flag at sunset
as the crescent
moon rises.

[BELOW]
A midshipman
dresses in the
cabin of RSS
Endurance.





As for damage control, trainees learn with the aid of a high-tech Damage Control Trainer that replicates a leaking ship complete with motion simulation. By the end of the course, they become so adept with shipboard leaks, the often-used joke is they have become “damage control plugs”.

Even ropes take on new meaning. In the Navy, a length of rope becomes a tool of the trade as sailors-in-training learn the intricacies of seaman knots. While infantrymen have their log PT, sailors prefer to do theirs with a rope – a thick one – including running in pace as a team while making sure it does not get dragged on the ground, as well as performing exercises in a circle facing the said rope. If it seems a little strange that such deference is paid to a rope, it is through such seemingly innocuous activities that sailors learn to respect the power of a rope on deck – it can save their life, or take it away.

Indeed, their takeaway is that life in the Navy is not about being a solo star. Instead, it’s about teamwork, it’s about family bonds, that no man is an island. Having such a culture makes sailors, in turn, become confident in their leadership and the roles they play on board a ship, with everyone knowing that each action they take, or do not take, might determine the safety of the ship they are sailing in. (Having someone see and praise their fastidiousness is less important than ensuring hatches are closed properly and kept watertight.)

Take something like personal wellness, for example. Staying healthy is something that’s so ingrained that naval servicemen take pride in being fit despite being restricted to the confined space of a ship. After all, if they are not up to the task they are required to perform on the ship, what good are they to the rest of their shipmates?

And what about commitment? The last of the three Cs is admittedly a challenging one to teach. It involves values and identity. Values that are aligned to Navy culture, that each sailor does what’s right, that they will bother to coil up a loose rope even though it’s *lehcheh*, that they will bother to even when no one is looking.

It’s when each sailor sees meaning and purpose



[ABOVE]
An RSN missile gunboat, 1974. The RSS *Sea Wolf* was the first to fire a surface-to-surface missile, launching the RSN into the missile age.

[FACING BOTTOM]
In April 1975, the Singapore Maritime Command was renamed the Republic of Singapore Navy, with the formation insignia of a swordfish.

[FACING TOP]
Singapore Naval Volunteer Force (SNVF) training, circa 1969.



in what they do that they become proud to wear their Navy uniform, proud to serve on a ship. It's not just another ship with a bunch of colleagues. The ship is their home away from home. Their colleagues are not co-workers, but family. They rely on one another. That's the Navy family, the Navy way, without which they know that missions will not be as smooth as they could be, as smooth as they should be.

The moment when the three Cs come together is when the sailors are taken out to sea. When they see Singapore from the sea, in the day and in the night, when they see the oil refineries, the twinkling lights of the heartlands, when they see how busy the Strait is, that's when they understand the Navy's role in protecting the country, defending our everyday. That's when, despite their early days of seasickness, when they throw up so badly they feel they're in hell, seeing Singapore their homeland aboard ship makes them realise that every second of what they do as sailors serves a higher cause.



[ABOVE]
Women now play a combat role in the RSN.

[BELOW]
The RSS *Independence* getting ready to slip off from Tuas Naval Base.



[ABOVE]
Ex Eagle, a bilateral exercise with the Indonesian Navy, 1990.

[LEFT]
The first RSN crest.

[FAR LEFT]
A Radar Navigation Specialist on RSS *Resolution* updates his log.

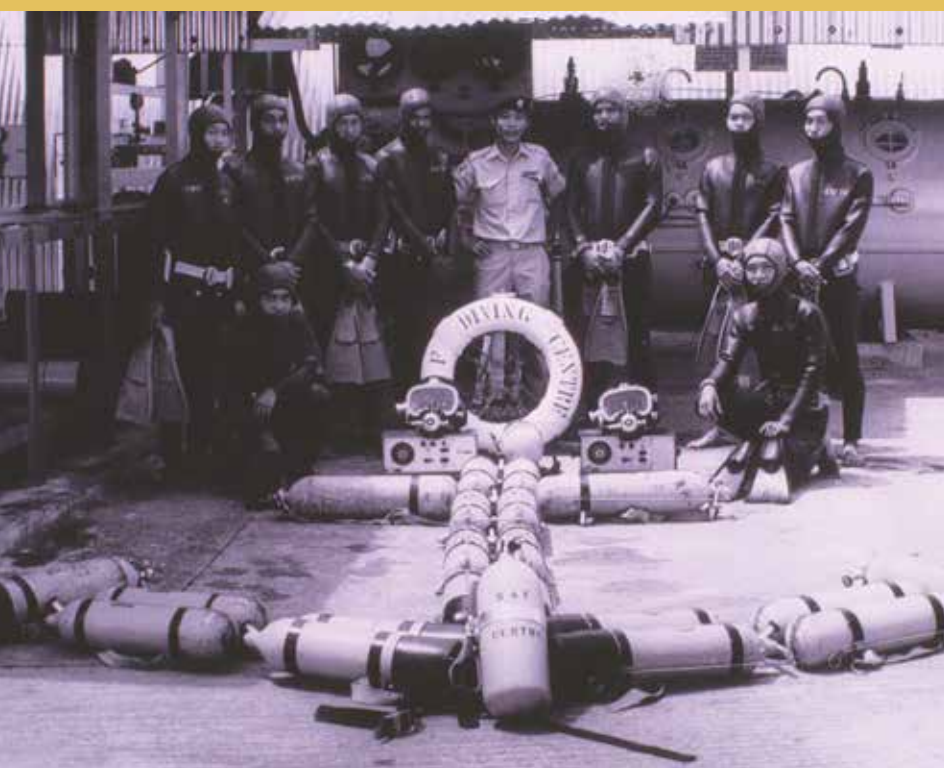




[LEFT] Maintaining fine form, a naval diver jumps from a pier into the sea.

[FACING] Naval Divers undergoing training.

[BELOW] At the Navy Diving Centre, 1990.



BASIC DIVING

Koh Boon Pin

It is called Basic Diving Course. It is anything but. For starters, any serviceman wanting to enrol in this course must first pass the selection test. This is a two-stage screening process where aspirants must pass their medical and a fitness test.

Far beyond the standard heart test, the medical checks for lung capacity and flexibility of one's eardrums. And oh, eyesight too, where a 6/18 vision will ensure divers have no problem reading their diving and pressure gauges underwater (without optical aid). Only then do they get to prove their fitness is course-worthy as well.

Comprising seven stations, an aspirant has to:

1. Swim underwater for 25 m in one breath
2. Jump into a pool from a height of 3 m
3. Swim 500 m in less than 14 minutes
4. Do a minimum of 50 push-ups within two minutes
5. Complete 50 sit-ups within two minutes
6. Do six pull-ups
7. Run 2.4 km in vest and slacks in under 14 minutes.

But these are just baseline requirements and do not guarantee entry into the course; the better they perform, the higher the chance of getting into the course.

Clearly, this is no civilian diving course. Which is why trainees are filled with a mix of excitement and nerves when they find themselves at the entrance of the Naval Diving Unit. There, emblazoned on the front wall of its main building is the word "Fearless". Indeed, one has to be fearless to be true to the NDU motto "Nothing Stands In Our Way".

While the two-week course is designed to teach trainees the basics of scuba diving, it is actually a confidence course set in water. After all, oil and water don't mix. Neither do man and water. But in the hands of highly-experienced instructors, the trainees get equipped with the necessary skills to dispel any fear they may have about spending protracted periods of time underwater with 36-kg scuba tanks on their backs.

Through a combination of theory and hands-on practice, the confidence levels of trainees are gradually built up in a training pool with customised depth levels of 1 m, 4 m, 6 m and 10 m. (One brag-worthy skill learnt is being able to tread water with one's hands above water for a long count of 60!)

Where infantrymen depend on their rifles, divers depend on their scuba tanks for their life underwater. So, the trainee divers learn how to handle and operate their equipment, solo and with a buddy. Working with a buddy is in the name of safety, and this includes communicating with each

other while they are underwater, sharing air supply and emergency evacuation should the need arise.

Because real life can be fraught with unexpected emergencies, trainees have to pass one particular test to show their composure under stress. While swimming underwater, trainees are deliberately harassed by instructors who rip off their masks, shut off their gas regulators and shake them around to unnerve them. The two-stage test lasts for 20 seconds each time, but to someone who is less than confident, it might feel like two minutes.

The point is to be calm enough to execute their recovery drills. Very quickly, they learn that being a competent swimmer does not mean one will be a competent diver; a simple task on land can suddenly become difficult to execute when one is submerged in water and deprived of air. In fact, fit trainees have been known to fumble with their equipment and panic so badly underwater, they shoot up to the surface to gasp for air, an action resulting in immediate failure.

Once trainees demonstrate

the requisite competencies, they progress to two open water graduation dives, one in the day and the other in the night. By this point, they are so well trained – the instructors have a "train hard, fight easy" philosophy – that the two jackstay dives, where they navigate an underwater route marked by rope, are almost like holiday swims in spite of the murky visibility. Especially memorable is the night dive where, on shaking the guide rope to ensure there is nothing harmful resting on it, the path is lit by marine organisms that become bioluminescent when triggered by the motion. But don't discount the difficulty of these dives, because visibility can drop to less than 0.5 m and trainees can lose their way.

The successful completion of this two-week immersion – a test of confidence and mental composure – is proof that man and water are not necessarily a bad mix. Just look at the smile on the divers' faces when they are presented with their basic diver's badge. Their weight loss and sun-dappled toned physiques are definitely a bonus!



REFLECTING ON EX GOLDEN SAND 2014

Fairoz Bin Hassan

With military exercises as part and parcel of a soldier's life, one might imagine that the tri-service exercise codenamed "Ex Golden Sand" is just another routine training.

A few fundamental elements set Ex Golden Sand apart. The first is its sheer scale. It is a large-scale exercise reflecting the SAF's push towards engaging a potential adversary in integrated warfare – wielding the full weight of warfighting resources across the Army, RSN and RSAF. And with scale comes complexity at all levels, which means that all involved would have to demonstrate not only high operational readiness and resolve, but also full confidence in the people we fight together with.

Ex Golden Sand 2014 in Pulau Sudong remains vivid in my memory. On the night of 23 April 2014, a team of reconnaissance troopers was heli-inserted into the area of

operations. Upon insertion, the troopers fed information to mission headquarters in Singapore where the planning of the assault mission was underway. As reconnaissance trooper CPL Sean Hedley Hudspeth put it, "We had to give as much information as possible – the whole scenario – where the heavy guns are, where the enemies are deployed."

With this information on the enemy's position, we prepared to assault the island. Once orders were finalised and given, some men were rapidly deployed by helicopter under the cover of darkness. Underslung Hook-up Man PTE (NS) Mohammed Muneer Khan was one of the soldiers involved in ensuring that the equipment got to the frontline the way it should. Speaking about his role, he explained, "When the helicopter came in, we swiftly hooked up the under-slung equipment, for example a Light Strike Vehicle, to the Chinook helicopter to be taken to the battlefield."

At first light, we launched the first wave of attacks. The firefight went on for a few hours, and the opposition force was eventually pushed further back. With the objective secured, the troops regrouped to prepare for the second mission as fresh supplies of food and ammunition were precisely airdropped by RSAF C-130 aircraft. Casualties were evacuated by air.

The men of 702nd Battalion, Singapore Guards (702 GDS) then executed a coastal hook – a flanking manoeuvre from sea – to take down the remaining enemy force and to pre-empt any ambush. Four RSN fast craft utility, with fire support from RSAF AH-64D Apache helicopters, carried the 450 NSmen of 702 GDS and M113 armoured personnel carriers towards the objective to

secure a beachhead.

Mission success!

But complacency has no place in operations. Thereafter, as planned, we dug in to ensure what we had reclaimed could be defended.

As an exercise to test the operational readiness and integration of Singapore's Army, Navy and Air Force, Ex Golden Sand certainly achieved its objectives. Beyond that, it instilled a sense of confidence in the ability of the Army, Navy and Air Force to work together as a potent force. As CPT Collin Huang, Operations Officer of Fast Craft and Training Unit, 191 SQN, put it, "The exercise showcased the integration of the Navy with our comrades from the Army and Air Force to achieve mission success. This synergy is not possible without the close working relationship within the three Services."

Ex Golden Sand was also a particularly momentous occasion for the NSmen of 702 GDS. For many in their 30s, with professional jobs and young families, the exercise was the culmination of their Operationally Ready National Service (ORNS) cycle. Some had even volunteered beyond their statutory obligation. It was the first time a National Service (NS) battalion ended their cycle with such a large-scale exercise.

For me, it was a most uplifting experience. I was (and remain) particularly proud of our people's professionalism, commitment and fighting spirit. I felt pride in serving alongside truly committed individuals from diverse backgrounds. I was also reassured and humbled by the capability displayed. Our will to fight is strong. It is palpable, and undeniable.

[FACING & BELOW]

Men of 702 GDS land on Pulau Sudong for the coastal hook exercise and happy to have ended their ORNS cycle with Ex Golden Sand.





EVALUATION EXERCISES

Koh Buck Song **Tried and Tested**

“THE MORE WE SWEAT in peace, the less we bleed in war” – so goes a slogan used on motivational posters of the SAF of decades past. Indeed so, and perhaps at no other time is more perspiration released than during the training evaluation exercises that units of all three Services go through each year. Each Service of the Armed Forces has its own way of trying the mettle of its troops, but there are common threads that weave together the whole fabric of camaraderie and commitment that makes the SAF what it is.

The RSAF holds the Command Challenges, one of which is aptly called Hotshot Challenge – an examination of proficiency spurred by peer pressure – where squadrons compete with one another to outdo their fellow servicemen in all aspects of work, from acing maintenance tasks to excelling in emergency situations. The RSN’s REDCON (short for “readiness condition”) inspection ensures that ships are truly seaworthy in all operational facets, and all the men and women on board can move in unison to succeed as one. And for the Army, the ATEC (Army Training Evaluation Centre) exercise is the ultimate trial of all that the unit has trained for in operational readiness, and where its solidarity also surfaces for all to see.

For these evaluation exercises to achieve their purpose, first, they need to be as realistic as possible, to create conditions that are close to what would prevail in actual operations.

For the ATEC exercise, the men of the 1st

Commando Battalion (1 Cdo), for instance, are equipped with a laser system in their rifles during missions. When rounds are fired, lasers are projected in a trajectory similar to actual bullets. If the lasers hit their intended targets – the soldiers of the “aggressor Red Force” – the soldiers who are hit have their electronic systems disabled, so that they will then not be able to fire any more rounds themselves and will have to lie down and become “casualties”.

Such precision in firing simulation is as realistic as you can get. However, despite having such a sophisticated scoring system, umpires are still required during the evaluations. These umpires play an important role because, as LTC Iain Hoo, former Commanding Officer of 1 Cdo, says, the difference between a hit and a miss is not so black and white. One example of this is when a real bullet would have penetrated a thin layer that happens to be in the line of fire, like a piece of cloth, but the laser beam can be blocked by it. In such cases, the umpire would call for a casualty.

The missions of ATEC exercises have been enhanced in recent years to take realism up to new levels. For instance, the “aggressor Red Force” has been made more powerful than before. In other words, the fight has been made tougher.

The operating terrain for the missions has also changed to become more urbanised, to reflect the changing theatre of warfare in the global context, where more conflicts are being fought out in city environments rather than in the countryside. The

[FACING]
A crew member
of a frigate
awaiting the
signal to clear
the flight
deck after a
helicopter-
landing drill.



[ABOVE]
When a ship is underway the bridge is manned by an officer of the watch aided by a seaman acting as lookout.

[RIGHT]
Fire drill in the belly of a submarine.



“enemy” now also includes more paramilitary elements, who may be civilians that are certainly more unpredictable and improvisational in their warfare methods, compared to uniformed soldiers who are more likely to fight according to established combat doctrines.

The three evaluation exercises in all the three Services therefore put units through what it takes for them to fight as a team.

For the men and women of the landing ship tank *RSS Persistence*, the REDCON inspection is truly a time for having “all hands on deck”, as the naval term goes. Some of the tasks under evaluation are shore-based, tested through simulators, trainers and some table-top planning exercises. But most of the action is on the ship. The ship itself must demonstrate her ability to accomplish missions assigned including taking charge of forces at sea. In addition, the ship must tackle threats from all dimensions including air, surface and underwater. These sometimes involve working with units from other Services, including the Air Force and Army.

The key focus, always, is on the human capabilities that are called for in such situations. The bridge team and the command team in the Combat Information Centre keep watch 24/7, acting as “the eyes of the ship” to direct operations and protect the ship by alerting their shipmates to any sign of danger. Other teams take care of seamanship tasks such as anchoring and berthing, or engineering functions deep in the bowels of the vessel. Much of operational readiness is about completing tasks efficiently and with awareness and capacity to adjust to unpredictable scenarios.

Communication is vital in all situations – having the ability to convey clear and timely instructions to the right persons, and for the required responses to follow without disruption or delay. Alertness and agility are also called for. All these require servicemen to have a firm grasp of their tasks, intense concentration and, above all, commitment to help each other do their jobs as best they can.

Professionalism, hence, is a keyword. Each

sailor must know his job and do it well, and keep honing his or her own skills, while improving the ability to work well with others. Through it all, the strengths and weaknesses of individuals invariably come to the fore, as the strains and stresses of the exercise scenarios call for intelligent on-the-spot assessments and coordinated responses – relaying instructions quickly and clearly, and performing their task with precision.

During the RSN’s REDCON inspection, the servicemen, once activated, take up positions at action stations and carry out their respective duties with the vigour that their many hours of earlier training have imbued them with. The scenarios they have to respond to include several situations of being under attack, such as when the ship is hit by enemy fire, is in flames, or when the generator has also been put out of action.

The quick and yet coordinated responses that are called for at such times put to the test all the professional skills that the servicemen have trained for, for many years. Along with these, life skills are also summoned, including especially the ability to work well as a unit, to spot areas of shortfall in their teammates and to step forward to fill those gaps wherever needed.

The men and women of *RSS Persistence* can do this well because they are a closely-knit community who genuinely care for each other. “We are all like a family,” says LTC Ang Jeng Kai, Commanding Officer of *RSS Persistence*.

There is mutual trust and they treat one another “like brothers”, ready to sacrifice for others and to extend a hand of help at any time. At its simplest, this can be observed in gestures such as a word of encouragement to teammates on duty. It is this family spirit that forms the character of their efforts and endeavour, and what inspires the men of the Navy to band together to achieve mission success.

Like this community at sea, the teamwork in an air squadron is just as much based on a foundation of trust. The spirit of togetherness at 143 Squadron also shatters some misperceptions along the way. Pilots are often portrayed in movies

as cocky solitary figures who think they can do anything on their own. However, pilots, like all other members of an air force squadron, are team players through and through, says LTC Ong Teck Koon, the Squadron's Commanding Officer. Pilots, he explains, are the first to acknowledge their dependence on their team members, and their gratitude for what their team does to support, and enable, them to do what they can do. "They know that without logistics, there's no way you can fly."

Thus, there is a kind of "telepathic teamwork" from pilot to maintenance technician, and the close communication with flight control spectacularly illustrated during the synchronised flight movements of aircraft. Over time, such dependence builds a deep sense of esprit de corps.

During a recent Hotshot Challenge, the men and women of 143 Squadron painted a bold statement – "We Dare" – in huge letters on a wall of a building at the air base. This was done overnight, to surprise, and to sound out a challenge to, the other squadrons who had gathered at the base.

This reveals the deep feeling of unit identity and cohesion that underscores the sense of belonging to the "RSAF tribe". This is what fires the drive beneath the typical high-performance culture of the air force, and enables its squadrons to excel at the evaluations.

These cover areas that include the expeditious maintenance of an airplane – making it serviceable again as quickly as possible. During the Simulated

Defects segment, a fault is called by the evaluators in some area of the aircraft – such as a leak or a damaged part – for the team to identify the defect. For tasks such as weapon loading, the team has to complete the arming of the aircraft in the shortest time, under the pressure of a wartime scenario.

Aside from these relatively more defined tasks, there is also the vital qualitative aspect of "fighting spirit" that the squadron must score well in. Here, the umpires observe the behaviour of servicemen during the challenge to assess how efficiently they can do their jobs under stress, and how effectively they work together as a team.

It is by no means an easy task to pull everyone together, when there is so much diversity within the ranks. In any one set of crew in the squadron, the range of work experience among the personnel could span from an NSF with less than a year on the job to a senior regular crew member with more than a decade of experience handling the same weaponry and equipment.

Through day-to-day training, the squadron fosters a positive work ethics where each person cares for one another as teammates, such as being considerate towards those who have less experience, giving them advice and coaching wherever it is useful, and allowing space for mistakes to be made and lessons to be learnt, while encouraging everyone to give suggestions to improve work processes. One simple method of facilitating this is to split tasks into categories. Some tasks can be done by one man, other tasks by two or more men. Breaking up tasks into modules enables this peer coaching to be effected even better. All this while, safety is paramount, of course. Adhering to safety standards and procedures is also a crucial part of looking out for, and after, one another.

The ATEC evaluation also brings this out. First, servicemen are assessed in their individual jobs, for instance, combat medics in tasks such as cardio-pulmonary resuscitation (CPR). Then, the unit is put to the test in platoon missions, covering tasks such as navigation and breaching objectives, followed by a company attack, with three missions



[ABOVE] An assessor gauging how well the marshaller had signalled the pilot in the Precision Marshalling Challenge.



[LEFT] Ground crew make final checks before the F-15SGs from 149 Squadron set off for their missions.

[BELOW] The gatling guns of F-16s find their targets on Pulau Pawai.





[ABOVE]
An officer giving a mission briefing during 5 SIR's ATEC in Ex Wallaby, Australia, 2012.

[RIGHT]
Troopers attacking a "house" in the target village.



over five days. The assessments may also be conducted in overseas training areas, to create more uncertainty and enhance the realism of the evaluation.

Like the servicemen of the RSN and RSAF, every soldier in the Army is trained and equipped to be a team player in every sense. For instance, if a platoon commander is incapacitated, the platoon sergeant must step forward. So too, for every other man, who must be ready to take over the responsibilities of a fellow soldier at any time.

At the bottom of it all, the key question for every soldier is: "Do you care for yourself first or the team?" This is exemplified when soldiers volunteer to go beyond the immediate call of duty, such as to carry additional ammunition on a field march, especially when their teammates are weakened by illness or injury, or simply when those who have greater physical strength chip in to give to the team where they are able to.

Commandos take this giving of the self one step further. Every commando believes that, in every mission conducted, they are to bring back to camp every single casualty as far as they are able to. To have to do this all the way from the battlefield back to camp would be the ultimate physical and mental challenge and, also, the extreme of giving to one's unit mate. For a commando, this supreme personal demand is probably the game-changer for fostering unit esprit de corps.

Such is the confidence that they bring to every task, whether or not under ATEC evaluation. This is a kind of assurance that is shored up by the simple knowledge that your brother would do the very same for you, that he will be always there for you too in times of need. This is especially so as commandos typically operate in detachments of two men, often in hostile and strange terrain, and are expected to survive by their own wits. For them, the demands of potential sacrifice for your brother and the reality of camaraderie in such extreme situations, paradoxically, call upon the resources of their own spirit at much more of an individual level.

In evaluation exercises, the primary quality

that would set one unit apart from others is the way that members of a squadron, ship or battalion can gel with one another and work well as one unit. In this way, playtime also helps ultimately to boost the work performance that is assessed under evaluation.

Outside of work, servicemen in all three Services routinely spend time on team-bonding. Much of this happens at the level of smaller department units. At 143 Squadron, for example, teams in the same department get together often to discuss recent experiences at work, how they have got along, why they behaved in certain ways in some situations, and what areas they can do more in, in future. Unit cohesion events and activities further strengthen the bonds of the larger team. The activity might be a game of soccer or basketball, or in the case of RSS *Persistence*, watching open-air movies on the ship's deck or jogging 209 laps round the deck just because the ship's pennant number is 209.

Thus, when it comes to the crunch – whether in the next evaluation exercise or, if ever, in actual times of war – servicemen will draw upon the fellow-feeling nurtured in such times. From this source will spring the spirit to endure and to persevere. Esprit de corps is not something that can be put together in a mechanical way. There is always a certain intangible quality – some call it "chemistry" – in human relationships that can never be demanded or dictated, only nurtured and nudged. On land, at sea, or in the air, the underlying motivation for this call to service is the same – to serve the nation together as one unit, as one band of brothers.

The Army, Navy, Air Force, indeed the Singapore Armed Forces as a whole, can operate more proficiently and effectively only because the men and women in uniform understand one another's capabilities well, and can pool their strengths in integrated warfare. Beneath it all, it is the deep sense of being united that holds everything together. This is the key factor for any victory. This springs from the capacity to fight not as a collection of individuals, but as a system, a team, a family.



OVERSEAS TRAINING

Benjamin Lee

Across Time Zones and Continents

THERE'S A JOKE about every SAF soldier having trained overseas and how it all starts with the closest overseas training venue – Pulau Tekong. But it is not too far-fetched to say that our SAF is one of the few militaries to train 24/7 across different time zones in five continents.

We train or have trained in almost every continent on the planet and in almost every season. We are issued cold-weather gear to keep us warm in colder climes. Our servicemen and servicewomen have sailed everywhere, submerged off Sweden, gone walkabout in the Australian bush, trained in nearby Brunei and Thailand, traversed Taiwan during the early years, rumbled in Germany and India, flown in France and the US, and bombarded Middle Earth (New Zealand) with artillery.

Why do we do this? One short answer is the lack of space. Then-Commander Training and Doctrine Command BG (NS) Tan Chuan-Jin remembers when commanders had to “join maps” to create simulated space in local training exercises. Long-time SAF soldiers such as LTC (NS) Ong Kien Soo point out the irony that overseas training affords us the wide open spaces that we lack in the country we have been charged to defend.

Our city-state is so small that it is impossible even for an infantry brigade to be trained in a single exercise. Train in the designated areas of Singapore like Mandai, Lim Chu Kang and Sarimbun and the reality is that you will never be

afraid of getting lost at night without navigational aids like GPS units and compasses. The hazy lights of the HDB estates or the glow of Johor Bahru will give you the bearings you need. Walk for a half hour and you are likely to encounter the asphalt of one of the expressways crisscrossing Singapore.

Indeed, to simulate a full-scale combined-arms war scenario involving jets, choppers, naval vessels, artillery and tanks with live-firing and beach-landing manoeuvres on our little red dot, we would have to evict all Singaporeans and destroy much infrastructure in the process. An impossibility. So, overseas exercises involving our own troops provide us with realistic training in varied terrain and conditions which cannot be achieved in Singapore.

Beyond unilateral exercises, bilateral and multilateral exercises in host countries also allow us to benchmark ourselves with the best armed forces of the world. RSAF pilots, for example, pit themselves against their counterparts from the US and Australia in the world-class Red Flag exercises and Ex Pitch Black. In the annual Ex Panzer Strike in Germany, our soldiers have the experience of manoeuvring and firing the Bionix 1 Infantry Fighting Vehicles and Leopard 2A4 tanks while learning from the Germans whose army has a strong and tested tradition of tank tactics. Our sailors also gain invaluable experience when we participate in the biennial Rim of the Pacific (RIMPAC) exercise, the world's largest multinational maritime warfare exercise.

[FACING]
Ex Semangat
Bersatu, a
bilateral exercise
between
Singapore
and Malaysian
armies, 1992.

Overseas training arrangements such as these – to the extent of establishing detachments in host countries – underscore Singapore’s determination to build strong and meaningful defence relations with partners worldwide.

Thus, generations of soldiers, sailors and airmen now speak of Waiouru, New Zealand; Shoalwater Bay, Australia; and Cazaux, France as if they were part of our own backyard, only that much further away, and so much bigger.

Pre-departure usually involves briefings telling us that such and such a training area is such and such times bigger than Singapore. Our perceptions of scale are therefore measured by the breadth of our country, and how many end-to-end MRT rides it takes in terms of travel times. (Armour commander to men: “The training area we are going to in Germany is half the size of Singapore, okay?”) The opportunities provided to the SAF in the Shoalwater Bay Training Area are also enormous. The vast terrain allows the SAF to conduct sophisticated and tightly-integrated manoeuvres such as amphibious landing that are not possible at home.

Being abroad also means unfamiliar dangers, so warnings about wild creatures, unfamiliar terrain and the occasional typhoon become part of our training briefings. And despite their whinges about training stints being too long and missing home, I would venture to say that servicemen past and present relish the challenges and experiences presented by these outings.

Such was an overseas experience in 1989. Our Infantry Fighting Vehicle broke down and was left behind with the crew by the rest of the battalion while they carried out the rest of the mission. Once that was over and it was time to come back for us, they couldn’t find us because the mark they had made on the map had washed off in the rain, and all they could do was try to retrace their tracks from memory.

You have to appreciate the fact that this was in the days when the SAF had only one GPS unit per combat company, and that said GPS unit was about the size of a coffee table.

The recovery vehicle commander then had a brainwave and said over the radio for us to “fire a few blank rounds on your mike golf (machine gun)” so that he could ascertain by the sound of the weapon discharging the approximate direction he had to head.

We fired off a few bursts only to be completely demoralised when the recovery vehicle commander said he couldn’t hear the shots apart from them being over the radio. When they did find us, it was discovered that we had been only 20 km or so away or, as we would say, “about half the length of Singapore.”

The other thing about being with your NS unit from full-time days through its entire In-Camp Training cycle is that you and your buddies get to train in several locations around the world together, and experience camaraderie in different climes and environments.

In one Ex Wallaby (no guesses for where that’s held) 10 years ago, an armour trooper ran huffing and puffing back to his platoon mates, who asked him, and I paraphrase, “What’s up? You look like you have seen a ghost,” to which the terrified NSman replied, “Worse than that! I was trying to do a No 2 when I got surrounded by a platoon of kangaroos. Now I’m constipated!”

Apart from the dangerous fauna, the flora in some locations was also interesting. Some of them even provided sustenance. Soldiers on Navex (navigational exercises) training in the hills of Taiwan in the 1970s were pleasantly surprised by the bountiful supply of oranges, apples and other edible fruit along the way and would sample a few before an irate fruit farmer came charging out demanding payment.

There were some unusual logistical requirements too. A combat CSM (Company Sergeant Major), a wizened Encik who hitherto had never experienced winter, advised his charges to buy long johns and proceeded to walk in them *sans* uniform across the host camp’s parade square before being reprimanded for indecent exposure. His explanation was that he thought they were the same things as track pants and sweat shirts.

[FACING]
Crew of
RSS *Archer*
undergoing
training in the
frigid weather
in Karlskrona,
Sweden.





[ABOVE]
Briefing German soldiers during Ex Panzer Strike, 2013.

[RIGHT]
Bionix tanks moving into position during Ex Bold Kurukshetra, an annual bilateral armour exercise between the SAF and the Indian Armed Forces, 2008.



Different linguistic environments posed challenges. Regulations sometimes prohibited SAF drivers from operating vehicles on civilian roads, and a vehicle commander once ended up having to improvise his own sign language to communicate with his local driver.

Troops training in Thailand spoke about how their movement was hampered by cattle driven by farmers, with one memorable radio communication transcript going, “one-two alpha to zero-niner, we are unable to move due to contact with Charlie Oscar Whiskey Sierra”, the soldier having the presence of mind to use phonetic letters to spell out “cows”.

Training was tough and robust – and we took our training very seriously. But there was also time for leisurely activities to rest and recharge. I remember the outdoor cinema that was set up – a large white sheet on which a projector screened a James Bond film. Folk from the nearby villages streamed into the camp to share the treat.

And Thailand being Thailand, some parents of NSF’s used to get up in arms about their sonny boys being in places where drag queen revues and strip shows existed.

Of course, sampling foreign cultures doesn’t require choosing something sleazy. The Republic of Singapore Navy’s first submariners spent months in Sweden preparing for our first submarine squadron, and adopted what has now become a Changi Naval Base tradition – “Little Christmas”. Every December, a ritual is held featuring a “hall of shame” of the perpetrators of not-so-serious operational and training cock-ups. These “heroes” are invited to tell their side of the story, and then drink a toast to their squadron before smashing their glasses in the “fireplace”, symbolically leaving the mistakes behind.

Down in Australia, the city of Rockhampton is the nearest semblance of civilisation for most SAF trainees on Ex Wallaby. There’s the Stockland Mall where national servicemen stock up on Aussie produce and groceries to bring home via Rockhampton’s tiny airport, where people from nearby houses line the perimeter fence to gawk at



[ABOVE]
Final inspection of the boom of a KC-135R before a mission flight, Ex Pitch Black, Australia, 2010.

the large aircraft from the Republic of Singapore Air Force or chartered aircraft. You could say “Rocky” is the quintessential Aussie outback town, with its giant commando fruit flies and thousands of heads of cattle in the middle of pristine native bush country. You could also say that, after 30-odd years of contact, it is the only Aussie town where almost every inhabitant understands and speaks a bit of Singlish. You could say as well that it is the one township down under whose citizens appreciate that soldiers from the Garden City care for flora and fauna as much as they do, to the extent of repairing any damage caused to the habitat during training.

In this way, the Rockhampton experience illustrates how the SAF opens a window to Singapore for our hosts. Through overseas training, each serviceman is thus an ambassador who bridges ties with our foreign friends in his own special way.