

WORDS: NICK SCOTT ILLUSTRATIONS: DANE FLIGHTY

# WARNING!

## THIS SNIPER RIFLE CAN KILL YOU FROM 2500 METRES

And 21 more reasons why human conflict is about to get livelier – and deadlier.



**The menacing-looking** widow-maker you see before you is more than

just a gun. It's the pinnacle of tens of thousands of years of weapons development – an evolution that began when some wily primitive first tied a stone to a stick, and will only end when the annihilation of mankind is heralded not by the majestic clangour of a Heavenly gong but a faint arterial throb from the charred remains of the last human.

Along the way, we've kicked the proverbial shit out of each other with clubs and cannons, spears and swords, maces and muskets, boomerangs,

battering rams and boiling oil. And don't expect a let-up: with the planet reaching its carrying capacity, white-coated soothsayers are predicting a scrap over its finite resources; and the ideological clash between East and West is raging more fiercely than ever.

No wonder governments are investing billions (\$US500 billion a year in the case of the US alone) on ever more breathtaking hardware, ushering in an era where mind and might come together in the form of space nukes, unmanned predators and million-round-a-minute firearms.

Welcome to the future of war. →

# The future of war

No pilot, no mercy, no in-flight entertainment



2

## X-47B UCAS

"The X-47B demonstrates how unmanned combat aircraft can operate from aircraft carriers, extending the navy's reach and power projection from anywhere in the world," bellows Captain Martin Deppe, an unmanned combat aircraft system program manager for the US Navy. Translation? You can run, but you can't hide. Eeek. This \$600 million UFO-style hunter-killer took Northrop Grumman six years to hone, but it was worth the wait. It flies high subsonic speeds (ie, about 960km/h), it can turn its hand to a number of missions (ie, intelligence, surveillance and reconnaissance) and it can carry payloads of up to 9900kg (ie, level cities). Due in service by 2020.



It can even drop a payload before take-off

## WEAPONS OF CHOICE

Coming soon to a battlefield near you



3 **XM25**  
Five times more lethal than a conventional explode-on-impact grenade launcher, the XM25 has a built-in laser rangefinder, giving soldiers the ability to "airburst" grenades. Why? Multiple-killing options, dummy. If your enemy is dug into a foxhole you can program a grenade to burst over his head. And if he's hiding behind a wall you can tell it to fire a grenade that'll burst parallel with it. Due to hit the battlefield in less than three years, these beasts come in at around \$30,000 per weapon – that's 30 times the cost of a basic US Army M4 rifle.

## 4 FN SCAR (Special Command Assault Rifle) Mk16/Mk17

Custom-designed for the US Special Forces, the FN SCAR is built in two different calibres, the 7.62mm Mk17 and the 5.56mm Mk16. Both have three interchangeable barrels for use in a variety of combat situations, while the Mk17 can fire both NATO rounds and shorter Russian 7.62 ammo (so captured AK-47 rounds can be used). They're already in production and are likely to replace the seven small arms Special Forces soldiers currently use.



Special Forces dudes always wear cool sunnies

### THE SHORTEST WAR

9am, 27 August 1896: An ultimatum from the British demanding their colonial subjects in Zanzibar install a pro-British sultan expires. 9.02am: Five warships open fire on the royal palace. 9.38am: Everyone goes home. Once they've finished their tea, the British demand the Zanzibar government pay for all the shells fired.



## 5 Com-Bat

One of the US Army's wackier plans has seen the University of Michigan receive a \$10 million grant to develop a 150cm robotic spy plane modelled on a bat and able to gather data from sights, sounds and even smells. Relying on solar and wind power to recharge its battery, the tiny spy plane weighs a mere 113 grams and features the very latest in miniaturised electronics. Beyond cruising over the battlefield, it will also be able to perch on walls and in trees and hedges to study the enemy for sustained periods. Cool, but sadly not due on a battlefield for at least another five years.



Hallucinating drunkard soldiers will totally flip

## 6 HULC (Human Universal Load Carrier)

Exoskeletons – mechanical external skeletons that give wearers superhuman strength – are all the rage in military research. In March Lockheed Martin demonstrated the first practical exoskeleton to take real steps outside the laboratory. The HULC (Human Universal Load Carrier) is hydraulically powered and enables its wearer to carry 100kg loads over all terrains. Plus, an onboard microcomputer allows it to mimic its wearer's actions (so much so, it can even crawl). It's ready to go, but as yet there have been no announcements about in-battle deployment.



He's so tough he can carry bombs to the enemy

This machine rages against humans



## 7 Fire Scout MQ-8B

An unmanned helicopter, the Fire Scout was the first vertical take-off UAV (unmanned aerial vehicle) to successfully fire a missile and land on a ship. Sure it's small, but don't be fooled – it packs a potent punch. Armaments include Hellfire "tank buster" missiles, Viper laser-guided glide bombs and the nasty sounding Advanced Precision Kill Weapon System (APKWS) – a laser-guided 70mm rocket that's a real battle decider.

## 8 NLOS Cannon

Packing a 155mm gun capable of firing ultra-accurate Excalibur shells that are steered like guided missiles, the NLOS (non line of sight) cannon is an artillery weapon sparked by a diesel-electric hybrid power system. And it's remarkably easy to use. Its fully automated gun turret means it only needs a two-man crew compared to the eight men required to man its predecessor, the M109. And it can undergo an ammunition reload in only 12 minutes, compared to the hour it took the M109. Could be killing as early as 2010.



The NLOS became tumescent with desire for "action"

## RISE OF THE WARBOTS

Peter Singer, author of *Wired For War*, on why unmanned weaponry is revolutionising what we once called human conflict

We've gotten 11 out of the top 20 Al-Qaeda leaders through robotic drones, without any casualties. Humans are still in the loop, but don't believe fully autonomous systems aren't coming – they are.

Yet, however many machines are involved, war is still driven by human psychology, politics and society. Robots are emotionless – they have no sense of empathy or guilt. What about war crimes? How do you apply the 20th-century laws of war to 21st-century technology? And what of the actual experience of going to war? Picture a day in the life of a Predator drone pilot: getting up in the morning, commuting to work, sitting at a computer screen and shooting missiles at targets for 12 hours. Twenty minutes after being "at war", they're sitting at the dinner table talking to their children about their schoolwork.

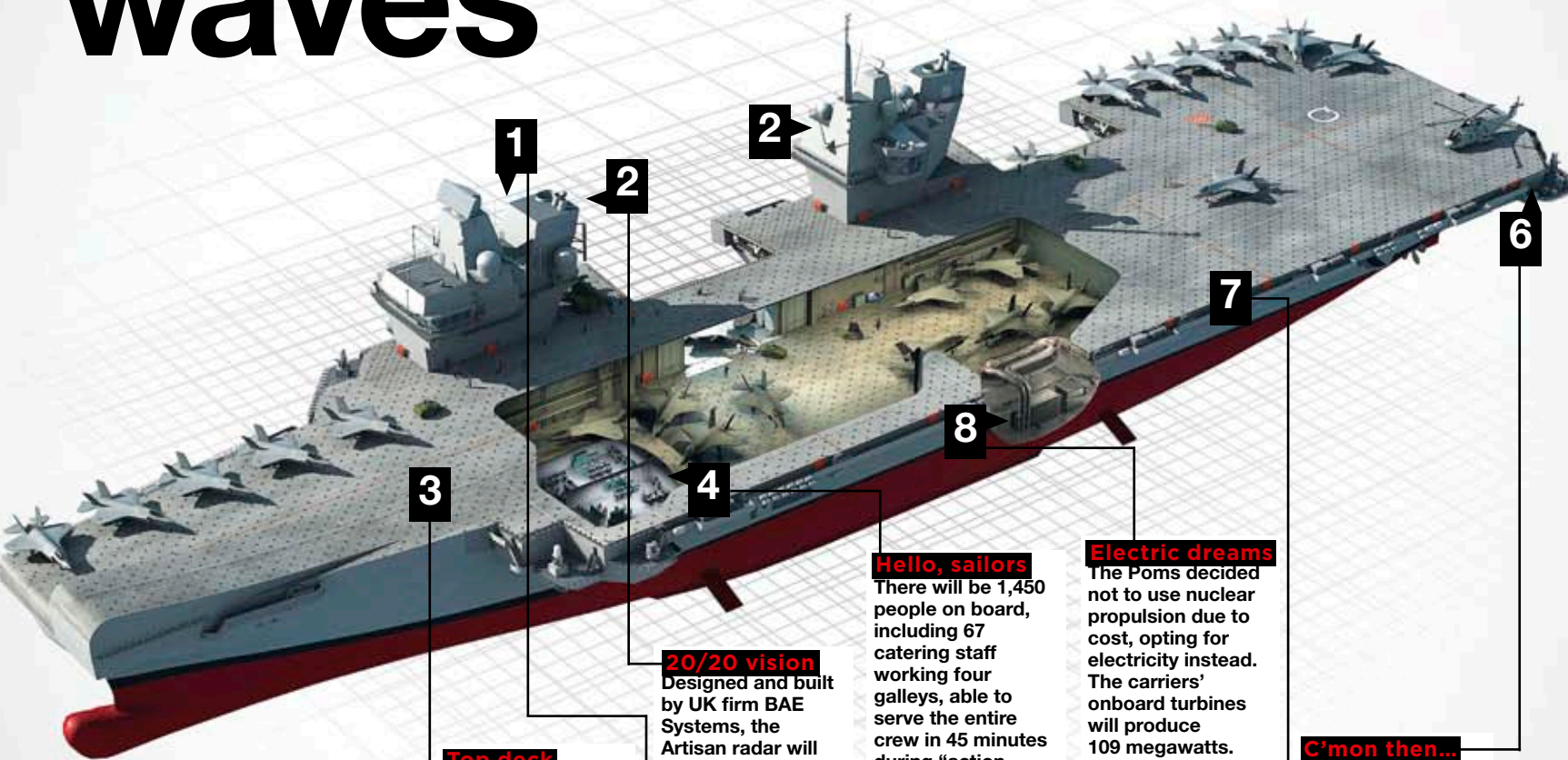
The Robotics Revolution and Conflict in the 21st Century, by Peter Singer, is out now.



9

# Making waves

After decades of underinvestment Britain's Royal Navy is stepping back up to the big time with two new aircraft carriers...



10

For too long Britannia hasn't ruled the waves.

Its aircraft carriers have become the Datsun 120Ys of the sea. HMS Illustrious and HMS Ark Royal, both launched in 1981, have been dwarfed by the carriers of the US and France.

Now, however, the war machine is grinding back into life as work starts on two new "supercarriers". The disappointingly named HMS Queen Elizabeth and HMS Prince of Wales will be three times the size of the UK's current carriers (though still not as big as the US ships) and equipped with shiny new fighter jets.

Due by 2014 and 2016 respectively, the project is costing the British about \$8 billion. But judging by the diagrams the Royal Navy has been good enough to show *FHM*, it will be worth it. They look immense. Just don't be surprised if they come steaming over the horizon to attack us for what Paul Keating did to the Queen.

## The Info

**Manufacturer**  
BVT Surface Fleet  
**Power**  
109MW  
**Top speed**  
25 knots  
**Range**  
18,520km  
**Price**  
\$4.7 billion (each)  
**In action**  
2014-2016

1

### Hello, sailors

There will be 1,450 people on board, including 67 catering staff working four galleys, able to serve the entire crew in 45 minutes during "action stations". More than 1,000 tonnes of food will be required to feed the crew for six weeks and a treatment plant will produce drinking water.

### 20/20 vision

Designed and built by UK firm BAE Systems, the Artisan radar will be able to track a target the size of a pool ball more than 20km away. The same system is being fitted in all Royal Navy ships.

### Top deck

On top of nine other decks, the flight deck is 70m wide and 280m long (70m longer than the navy's current carriers), which is roughly 160 John Howards. The planes will be taken up to the flight deck on two huge lifts, both on the starboard side, and taking just 60 seconds.

### Second home

These will be the first carriers to have split headquarters. One will be devoted to ship navigation (fore) and the other will focus on air operations (aft).

### Plane sailing

Thirty-six F-35 Lightning IIs are being built in the US. These single-seat strike fighters have a top speed of 1900km/h and stealth flying capability. They won't be ready until 2018, so Harriers will fill the gap.

### Electric dreams

The Poms decided not to use nuclear propulsion due to cost, opting for electricity instead. The carriers' onboard turbines will produce 109 megawatts. The two propellers will be 6.7m in diameter and the anchors will weigh 13 tonnes each, the same as about eight Holden Commodores.

### British steel

More than 80,000 tonnes of steel will be used to build the carriers. Once at sea they will each displace about 65,000 tonnes of water when fully loaded, roughly three times that of the current carriers. America's carriers are 340m long and shift 100,000 tonnes of water when fully loaded.

### C'mon then...

The boats will be armed with the Phalanx defence system, nicknamed R2-D2 because of its likeness to the droid. The 20mm guns search, detect, track and destroy incoming missiles, firing up to 4,500 rounds per minute.



9

Things are taking off in the Royal Navy

## The future of war

### DEATH SQUAD

History's military hardware pioneers

#### The Chinese

They invented the crossbow, the traction trebuchet – that giant wooden catapult thing medieval folk besiege castles with in films – and gunpowder. The last of these was stumbled upon by ancient alchemists, around AD 850, who mixed 75 parts saltpeter with 15 parts charcoal and 10 parts sulphur. Their attempts to discover an elixir for immortality quite literally blew up in their faces.



#### Leonardo Da Vinci

Best known for dodgy Tom Hanks films and depicting Jesus's farewell piss-up on canvas, the man behind the *Mona Lisa's* smile was also something of an inventor. Resemble a garden rake it might, but his eight-barrelled machine gun predated James Puckle's patent for the first machine gun in 1718 by more than 200 years. He also drew up plans for a multi-gunned tank and a helicopter.



#### Alfred Nobel

Yep, the bloke behind the Peace Prize. Nobel's dad owned a Russia-based engineering firm that provided military hardware, including landmines, to the Tsar's army. Alfred himself invented dynamite. He owned Swedish company Bofors and turned it from an iron manufacturer to a cannon maker. Today the company is part of BAE Systems – one of the world's biggest manufacturers of combat vehicles, ammunition, artillery systems, naval guns and missile launchers.

#### Mikhail Kalashnikov

Sixty-two years after its invention by a lieutenant general in the Russian army, the AK-47 assault rifle remains weapon of choice for insurgents, child soldiers and jungle revolutionaries. Why? It's cheap, weather-proof and easy to use and maintain because it has so few moving parts. It's also about as accurate as a dog pissing up a rope, but you can't have everything.



Just so long as the grenade doesn't launch the rifle

### 14 Rafael Simon 150 Rifle-Launched Grenade

This rifle grenade was developed by Rafael, otherwise known as the Israeli Authority For Development of Weapons. Inside that plastic doughnut is 150g of explosive charge, which is detonated by impact pressure on the tip of the alloy rod protruding from it. You slide it over the barrel of a conventional rifle, aim it at any door then turn said door into a pile of splinters. Not for casual use in the event of key loss.



Gonna pop a cat in your arse

projectiles using electricity. There are no moving parts except for the bullet and the round – and so they call it the 'million round a minute gun'. There are a few prototypes, but it's going to change the way rifles are constructed." FireStorm, pictured, launches 40mm grenades. A quarter of a million of them. In a minute. Check it out on YouTube and weep.

### 11 CornerShot 7.62 Assault Pistol Rifle

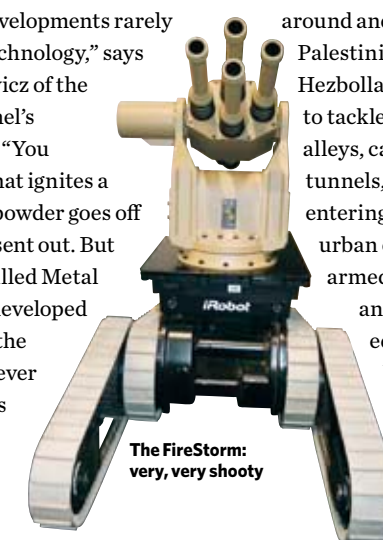
Looks like a cuddly moggy; actually pumps 7.62mm lumps of lead into insurgents' foreheads. Given that the CornerShot is primarily used to take out terrorists and hostage-takers, it won't come as a surprise that it was developed by Israeli Army senior officers (see sidebar), with sponsorship by American investors. Baghdad's now much-targeted cat community is said to be not amused.

### 12 MetalStorm

"Crazy developments rarely happen in gun technology," says Richard Machowicz of the Discovery Channel's *Future Weapons*. "You strike a primer that ignites a booster, the gunpowder goes off and the bullet is sent out. But now this thing called Metal Storm has been developed in Australia. It's the only system I've ever heard of that fires

### 13 Elbit Systems VIPeR Portable Combat Robot

Why go forward rolling from a position of cover into an exposed area and certain death when the VIPeR Portable Combat Robot will do it without even bothering to shout "cover me" at his pants-soiling comrades? At 12kg and just 22cm tall, it was made by Israeli defense firm Elbit for soldiers to carry around and unleash on Palestinian or Lebanese Hezbollah guerillas. Happy to tackle stairs, rubble, dark alleys, caves and narrow tunnels, it's capable of entering pretty much any urban combat zone, and is armed with bomb-sniffing and bomb disposal equipment, plus an Uzi machine-pistol. It can also plant a grenade via remote control.



The FireStorm: very, very shooty

### 15 Rafael Matador

Developed for the Singapore army, this shoulder mount wall-breaching device has two modes: one is handy if you want to make a hole in a wall (up to 20cm of double reinforced concrete); while the "blast mode" increases the interval between two charges going off, ensuring that you take out the entire building. So any war movie set from now on can forget about portraying soldiers hiding inside semi-destroyed buildings – they wouldn't last five seconds.



Someone needs a hug

## THE FINAL FRONTIER

How long before weapons are, literally, out of this world?

Look up at the sky for a second. Now imagine that, just 120km or so beyond the outer limits of your vision, a nuclear warhead, only a few metres long but capable of wiping out a city, is aimed at Australia.

This is the reality that awaits us, according to Dr Helen Caldicott, Australian speaker, physician and co-author of *War In Heaven: The Arms Race In Outer Space*. "War is already being fought from space," she says. "There are already satellites that identify targets in, say, Iraq. Someone sitting at a console in Florida then sends a message to the drones, which shoot down missiles.

"Now they're building anti-satellite weapons to blind enemy satellites, such as China's and Russia's. Next up will surely be weapons in space, fired down to Earth. There are already plans to launch titanium rods up there, because the weapons will be powered by plutonium 238 – pretty much the most deadly material known to man. There are already plans to create laser weapons that will be fired down from space."

The MK44 is the machine gun of cannons



**STILL AT WAR**  
**Japan and Russia**  
 Russia has never signed a peace treaty with Japan following WWII.  
**North and South Korea**  
 An armistice was never signed after the Korean War ceasefire – which means the US and Australia are still technically at war with North Korea.  
**China and Taiwan**  
 There's been no ceasefire since the 1949 civil war.  
**Syria and Israel**  
 Still at odds since the 1967 Middle East war.

17

## MK44 Bushmaster Automatic Cannon

The MK44 homing torpedo is pictured here atop an amphibious Expeditionary Fighting Vehicle, which is due for deployment by the US Marines in 2015, although this baby can whup just as much ass from any military aircraft as well. That beam of light you see is the burn of the targeting tracer. The Bushmaster fires 200 rounds a minute to a range of 3000 metres.



You can park it wherever you bloody well like

20

## Valanx Joint Light Tactical Vehicle

The "phalanx" was an angular troop formation used by the ancient Greeks to protect soldiers in combat; this vehicle has a V-shaped hull, which deflects mine blasts. The US military is developing this beefcake of a vehicle to replace the Humvee. The makers are short on specifics, but it'll have a Transformer-like number of configurations.



Go away, Fiji! Go away!

## 18 Ripsaw MS1

Built as a private venture on a shoestring budget (in military terms) of \$1 million, the Ripsaw started life as the world's fastest tracked vehicle (with a top speed of 120km/h, it can accelerate from 0-80km/h in 3.5 seconds). But now the US Army wants to use it as the world's deadliest robot – a unit able to shoot and scoot before the enemy knows what's hit it. The robotic Ripsaw is remotely controlled from an M113 armoured vehicle by an operator using a bank of TV screens designed to make him feel like he's playing a first-person shooter computer game. Breathe semi-easy, though – development of the Ripsaw is still in its early stages.



But let's see it go up a spiral staircase, eh?

19

## AquaRam Tactical Disrupter

With AquaRam products you get what it says on the tin – a jet of water rammed into an incendiary device to detonate it and suppress its explosive effects, preserving plenty of forensic evidence and – more importantly – the lives of those in the immediate proximity. Various sizes of AquaRam can be deployed, depending on whether you want to surpress the potential effects of a carelessly abandoned handbag a bomb-packed van. Bomb disposal experts are said to be more than happy to hang up their wire-cutters.



AquaRam: like a Super Soaker on 'roids



## 21 Beretta ARX 160

Currently undergoing trials by the Italian armed forces as part of its trendy sounding "Soldato Futuro" program, the Beretta ARX 160 weighs 3kg, compared to the 4.5kg AR70/90 currently in use. Firing 700 rounds a minute, it effectively comes in kit form, so soldiers in the field can swap a 30cm barrel for a 40cm barrel. For some reason. And a child could operate it! Awesome!

## 22 BAE Systems 57mm Mk110 Naval Gun

It looks like something from *Star Wars*. Much more impressively, it fires like it, too – automatic salvos of up to 220 rounds a minute to a range of 14km, making it the US Navy's future system of choice against all threats. Has a delay function, presumably for suicidal sailors who haven't been issued with a gun.

# FIRING LINE

Richard Machowicz, presenter of Discovery Channel's *Future Weapons*, on war's benevolent new face

Putting the "macho" in Machowicz



FHM: That's some gig you've got...  
 Mac: Yeah, I go around the world, I shoot big guns, I fly in incredible aircraft and blow things up. What boy wouldn't want that job? But there's a serious side.

FHM: Yes – as reflected in a change of the show's name, we hear.  
 Mac: That's right. It was originally going to be called "Overkill", but then I thought: "That's going to make the military and defence contractors look like Dr Strangeloves." They're not thinking about how many they can kill – they're thinking the opposite.

FHM: How do you mean?  
 Mac: Well, developed nations have a shared attitude: the enemy can behave how they want to – they will use civilian shields, kill people en masse, saw off a person's head and put it on the internet – but we won't do that. We put a value on human life. We want nation states, with civilians who get fed.

FHM: How does that affect strategy?  
 Mac: Three ways – one, maximise accuracy, minimise collateral damage and get our guys home safely. If anyone wants to get through that fantasy door marked "No War", they're going to have to go through a door marked "Future Weapons" first.

FHM: Tell us more about accuracy.  
 Mac: In WWII, thousands of bombs were dropped over cities; now, with GPS and tailfin stabilisers, a dumb bomb can go to any GPS co-ordinate.

FHM: What about avoiding collateral?  
 Mac: Soldiers are increasingly surrounded by civilians, so they need less-than-lethal options. We have the Active Denial System, which shoots a millimetre-long wave. I've been popped by it and it feels like intense sunburn. But as soon as you run away from it – which is what it's designed for – it's gone. This thing has a range as good as most assault rifles now.



16