HATCHING A PLAN
The initial step to restructure the Singapore businesses has begun with the opening of a centre of excellence, or Incubator, in this ‘city in a garden’.

KEYS TO THE KINGDOM
Hunting opens up its first manufacturing plant in Saudi Arabia, establishing a strategically important joint venture with local partners.

A DOG’S LIFE
Hunting has supported Patriot PAWS for three years running. This ground breaking Texan organisation trains dogs to help veterans who have suffered in the line of duty.

GET CARTA
A charter signed in the UK exactly 800 years ago to keep the peace between an unpopular king and his rebellious subjects has continued to shape the course of British society.

SUB SAHARAN SUPPORT
The Sub Saharan footprint grows with a forward operating base being established for the South African operation, in the port of Mombasa, Kenya.

BAZOOKA
The complex history of fracking sees the development of innovative technology and the release of a brand new Hunting Perforating System.

OUR HUNTING COMMUNITY
News from our community around the world.
Seasonal reflections

The news media reminds us of how oil and gas prices have tumbled over the last eighteen months with OPEC in disarray as supply tops out at some 95 million barrels per day. Hidden by the headlines it is easy to ignore the steadily increasing demand for gasoline in the United States, the needs of a rapidly growing Indian population and still expanding China. The deceptive reality is that even at full capacity there is still only a 1.5 percent supply imbalance.

We are not immune from these volatile times and cannot control markets but we can adapt and plan for them. We look to remain vigilant for opportunity and be prepared for when the cycle turns. We continue to develop our technologies, reported here with the introduction of the H-1 Perforating System; we continue early stage planning for optimum site utilisation for a Singapore campus; we continue to build on our in-country relationships, visiting in these pages our joint ventures in Dammam and Mombasa.

We also remain committed to our communities and commend the efforts of individual members, while drawing inspiration from the bodies they support, including the awesome work of Patriot PAWS whose work we applaud as part of our corporate focus.

Chief Executive Officer
Hatching a plan

With the long term aim of bringing Hunting’s five Singapore facilities onto one campus, there are many stages that need to be achieved before such a project can come to fruition.

To mitigate risk, the vision to deliver Project Shine has been broken down into phases with twin objectives: to establish Steering and Planning Committees, make appointments and set up the project management structure.

Second is to consult widely to create the business model on which planning can be based for facility optimisation, long before ground is broken. This is based on the premise that Project Shine is as much about developing the business as building the infrastructure.

MAN WITH A PLAN

It is a truism that space is at a premium in Singapore, never more apparent when noting how the city-state has grown by more than a quarter since the 1960s through land reclamation of some 145 sq km. With such a highly prized resource it is of little surprise that planning for the built environment is equally meticulous.
The dimensions of any planned development in the region is strictly dictated by the allocated plot size. This is a curiously Singaporean practice that leads to the characteristic multi-story industrial units rather than horizontal sprawl. At the same time as maximising the industrial footprint, environmental considerations are also elevated in this ‘city in a garden’. As the guiding light and founding father of independent Singapore, Lee Kuan Yew wrote “I have always believed that a blighted urban jungle of concrete destroys the human spirit. We need the greenery of nature to lift our spirits”.

SUNNY VIEW
Within Singapore’s particular planning environment, the company’s Steering Committee is tasked with engaging government for location, land acquisition and fiscal planning. The Planning Committee is tasked with making sure the customer and supply chain interface is fully addressed and that the appropriate infrastructure and operational requirements are also being met.

With 3.3 hectares of land at Sunview Road reserved (although road configuration and access has still to be finalised), the project has a focus on which detailed plans can be drawn up before capital expenditure is committed and construction commissioned. A competition was held to select external consultants as project managers for the civil works when recommended by the Advisory Panel and sanction sought. Key factors weighed in the assessment included capability of strategy execution, cost and risk management.

To comply with stringent Green Mark Certification every aspect of the environment is being considered from energy use and wastage (especially with regard to air conditioning) to rainwater capture and vertical gardens; the full scale of planning in a responsible manner.

“I have always believed that a blighted urban jungle of concrete destroys the human spirit. We need the greenery of nature to lift our spirits”
INTO THE INCUBATOR

In the meantime as part of the business development objective, an Incubator facility has been set up with support from Singapore’s Economic Development Board that now houses the regional training centre, the Hunting Training Academy. This brings together crucial elements of the core business units to assist collaboration, integration and leveraging of internal skills. Known in company short hand as ‘Tuas’ this is located close to the other facilities in the Jurong industrial district on the south western side of Singapore.

Co-location of the individual business streams in the Incubator is designed to identify bottlenecks and encourage problem solving through teamwork within the company’s business excellence framework, before the new campus even takes shape. Combining the Training Academy with the Well Intervention operation has already allowed cost savings to be made through the consolidation of the two sites into one, with a larger overall footprint.

Tuas provides an intermediate 6,000 sq m manufacturing capability that covers the company’s state of the art CNC machining capability and associated processes serving dual purposes of training and production. In addition it introduces an electronics line, cloned on the Houston model, and a precision machining cell cloned from Hunting Dearborn. Together this is designed to replicate the Advanced Manufacturing Group’s capability for Singapore, providing a local MWD / LWD proficiency previously just restricted to the US.

A NEW WAY TO DO BUSINESS

With the Incubator up and running, there will be an opportunity to try out new business concepts in partnership with customers and to match their requirements with process capabilities. Lessons learned at an experimental stage will be honed and eventually scaled up with a direct input to the final design of the campus. Flexible manufacturing at the heart of the current offering can then be supplemented by a range of additional value added services to increase efficiency in the supply chain.
TO BE A SINGAPOREAN

In the year of Singapore’s Golden Jubilee it is fitting to see how the nation regards itself and the various communities from which it was first derived. It was the pioneering generation of leaders, especially Prime Minister Lee Kwan Yew and Goh Chok Tong, who remarked upon the non-traditional make up of what a nation would expect to be. English is the first language but for most this is not their mother tongue, religious belief is not defined by ethnicity and cultures are melded from different histories. However, what has emerged when celebrating Singapore at 50 is a clear and apparent Singaporean identity which has contributed so much to its success.

The juxtaposition of cultures is never as apparent as in the conservation area of old China Town. The walls of the buildings are generally made from stone or block and roofs clad with tiles, a hang-over from colonial by-laws to minimise fire risk. Houses have taken on the role of ‘painted ladies’ with their bright and contrasting coloured facades and architectural detail. No mono culture, the area is replete with temples, churches and mosques, side by side. Among these is the Sri Mariamman Temple, the oldest Hindu temple in Singapore built in 1827, whose striking skyline sculptures vie with the city’s modern offices.
The keys to the Kingdom

Located in Dammam, the epicentre of Saudi’s oilfield service sector in the Eastern Province, Hunting Energy Saudi Arabia LLC is Hunting’s first manufacturing facility in the Middle East.
The new 20,000 sq ft facility is custom built to manufacture, assemble, test and re-certify Hunting Wireline Pressure Control Equipment (PCE) and Thru Tubing tools. It is also a sales office which supports the Hunting Titan and Well Testing product lines.

Since the establishment of a sales and service centre in Dubai in 2005, Hunting has enjoyed good market growth and brand recognition in the Middle East and North African region. While Dubai provides an unparalleled regional distribution infrastructure for international business throughout the GCC (Gulf Cooperation Countries) and beyond, the Kingdom of Saudi Arabia is unquestionably the major economic powerhouse in the Gulf. Not only is Saudi Arabia the largest economy and oil producing nation in the Middle East it is also by far the most populous, has the largest workforce and is the biggest oilfield services market. Establishing Hunting in the Kingdom has been gradual but having completed the set-up stage, Saudi Arabia does offer a stable business-friendly framework for foreign investment and sustainable long term expansion via the Saudi Arabian Government Investment Authority. Full commitment to supporting local government employment and economic initiatives, as well as standing shoulder to shoulder with key Saudi customers, allows Hunting access to opportunities that can only be addressed by having a local presence in this energy superpower.

Despite the current global market conditions, Saudi Arabia continues to operate at record levels with high numbers of active drilling rigs, coiled tubing rigs and wireline units. The Kingdom’s strategy to maintain market share and develop its unconventional gas resources has ensured the market remains relatively active. With Hunting’s manufacturing and well intervention service facility in Dammam fully operational at the end of 2015, the company is well positioned for rapid market penetration.

**PRODUCT PLACEMENT**

A strategy has been pursued to “Saudi-ise” the product lines that will benefit significantly when supported by in-country manufacturing and distribution within the Kingdom. This local supply strategy is designed to thrive where a long lead import supply chain of Original Equipment Manufacturer (OEM) products, restricted by the challenging logistical system, had severely limited the market opportunity.

The intention is to leverage local manufacturing with quick delivery, on hand technical support and closer customer cooperation for the following Hunting lines:

1. Wireline PCE – manufacture, assembly, testing and re-certification services
2. Thru Tubing tools – manufacture, assembly, testing, refurbishment and field services
3. Downhole Slickline tools – manufacture and local inventory distribution centre
4. Hunting Titan perforating systems and hardware – local inventory distribution centre
5. Surface Well testing equipment – local assembly, distribution base and technical support

The manufacturing plan encompasses machining the majority of basic Wireline PCE, Thru Tubing tools and basic Slickline Tools in-house while importing the more complex OEM components from Hunting manufacturing facilities in the US, Europe and Asia Pacific.

**COMPANY STRUCTURED**

In a country where strong relationships with the world’s largest oil company, Saudi Aramco, are crucial and knowledge of the Saudi administrative system equally important, Hunting identified the optimum structure for the company as a joint venture with a carefully selected local partner, SG Petroleum. In his role as General Supervisor for well services in Saudi Aramco, during which time he was instrumental in adding Hunting as an approved supplier of Wireline PCE in 2008, SG’s Abdul Wafi Al Ganbar was an easy choice of business partner. Furthermore his brother and SG Petroleum’s CEO, Saad Al Ganbar, is a technical and commercial expert in the Saudi well intervention sector. He has worked in the wireline business for over 20 years including highly respected professional experience with Saudi Aramco and the large international energy service companies. As agreed in the Joint Venture (JV) Shareholders agreement, Hunting hold 60 percent and SG Petroleum have a 40 percent stake in the company. Five board members lead the JV with Hunting having a controlling vote. Routine management, technology transfer and manufacturing know-how is provided by Hunting while SG Petroleum provide the local facility infrastructure, government relations expertise and high level local customer relationship support.

**POWERED BY PEOPLE**

By engaging with the National Industrial Training Institute, the Saudi Petroleum Services Polytechnic and the Human Resource Development fund, Hunting is able to source and sponsor the most relevant individuals in a talented pool of engineers and technicians. The plan from the start has been to employ a high proportion of Saudi nationals within a staff of sixteen.

Having successfully established Hunting Welltomic in Asia Pacific, Sean McCluskey has transferred from Singapore to take on the role of General Manager in Saudi Arabia. The HR and Government Relations Manager, ensuring Hunting complies fully with local HR and government regulatory requirements, is (pictured on page 8) Hunting Energy’s first Saudi national employee, Mohamed Bokhamseen, who will soon be joined by many other talented Saudi nationals to embrace Hunting’s culture, just as we embrace theirs.
A dog’s life

Dallas-based Patriot PAWS has been selected to remain Hunting’s official non-profit beneficiary for the third year running.

It has been a long-standing tradition for Hunting PLC to champion local organisations which are providing vital help to those most in need. Typically selected on a biennial basis, the company’s chosen charity will receive support and sponsorship through both financial contributions and wider promotional activity. This includes a direct donation made on behalf of the Hunting Art Prize, while Hunting also provides additional assistance from the sale of art at the Prize’s annual gala.

Patriot PAWS Service Dogs has been Hunting’s chosen non-profit for the past two years and, in an unprecedented break from tradition, has recently been selected for a third term. Established in Dallas, Texas in 2006, Patriot PAWS aspires to “restore physical and emotional independence” to disabled American ex-service personnel and others in the community with physical and emotional disabilities, through the provision and training of service dogs.

Funded entirely by private donations, the charity places service dogs with veterans free of charge, supported by an army of volunteers, local organisations and charitable donations.

PUPPY LOVE

The founder of this inspirational cause is Dallas-based Lori Stevens (pictured opposite) who was prompted into action by the city’s Veteran’s Association. Having recently returned from service, the group of disabled armed forces personnel asked Stevens – who has over two decades of professional experience in the field - for help training their dogs. Stevens soon discovered that there was a widespread need for service dogs and immediately began recruiting volunteers to help change the lives of disabled veterans.

While in its first few months Patriot PAWS had more dogs on its register than veterans in need, but an NBC news feature in 2007 helped raise the profile of the organisation and word quickly spread, prompting a rapid rise in demand. Since then Stevens and her team have been dedicated to developing partnerships with the state and community organisations to help extend the charity’s reach and increase the self-sufficiency of wounded veterans and those with mobile disabilities.

Today eight instructors, 20 puppy raisers and 134 volunteers oversee the dog training programme across Texas, including six based at the Patriot PAWS headquarters in Rockwall. The charity also has a trainer working in conjunction with the state’s Texas A&M University for the ‘Patriot PAWS of Aggieland’ satellite programme. The mission of this student-led branch is to assist in the socialisation, training, and rearing of specialised service dogs to aid disabled veterans. The team also fundraises for and raises awareness of mobility assistance and Post Traumatic Stress Disorder (PTSD) service dogs.

Rehabilitation runs to the very core of Patriot PAWS, as demonstrated by the charity’s work with prisoners. Instructors work with offenders, providing coaching in methods and skills so that they too can become dog trainers. Indeed, Lori Stevens credits the charity’s work with Texas Department of Criminal Justice as “a blessing” which has enabled her to respond to the rising requirement for service dogs. The organisation has worked with around 200 inmate trainers, 79 of which have since been paroled. “The fact that our programme helps not only veterans, but teaches skills to those in prison that, once they have been released, can translate into employment resonates with many people” explains Stevens.

CANINE CAREER

Patriot PAWS puppies usually begin training at eight to ten weeks of age and trained until they are up to two years old. Stevens selects Labrador retrievers as the breed of choice due to their size and stamina, which offer balance support for those with mobility assistance, while the dogs’ mouth structure enables them to pick items from the floor. The instinct to ‘retrieve’ is also beneficial as their behaviour is shaped to fetch items and bringing them back on cue.

The special skillset required for a dog to become a fully-trained service dog does mean that not all are able to reach the required level of training to be suitable for the job. Patriot PAWS estimate that 54 percent of the dogs that enter training are ultimately given placement. This includes ‘career change dogs’ who, for example, take on vital roles in drug or bomb detection. One such dog is a Conservation dog in the Galapagos Islands whose responsibility is sniffing out invasive snails that damage the sensitive eco system. Another has assumed the role of Child Advocate for the Dallas District Attorney’s Office.

The services performed by each dog depend on the specific needs of the owner and the team work tirelessly to match veterans with suitable dogs. Once a dog is placed, the aim is for it to stay with its owner for the rest of their life. However, not every dog is right for every veteran and if the ‘chemistry’ isn’t correct between dog and owner or the animal does not fit into a particular household it will be placed with another veteran. If an owner passes away after a dog has been with them for a number of years, the trainers allow the family to keep the dog, while if a dog dies the charity will replace it after the owner has had time to grieve.
“The fact that our programme helps not only veterans, but teaches skills to those in prison that, once they have been released, can translate into employment resonates with many people”
HUNTING DOGS

Service dogs complete a customised training programme and learn to perform a variety of functions, including supporting patients with PTSD. The dogs are taught an extensive range of behaviours and actions, from the seemingly mundane but nonetheless important tasks such as ‘pick up’ and ‘retrieve’ and opening and closing doors; to getting help in emergencies; recognising and averting PTSD episodes; pulling wheelchairs; providing bracing help to stand, walk and sit down; and even helping with household chores, such as the laundry.

Patriot PAWS estimates that it can cost up to $34,000 to train a puppy into full service certification. Help received from Hunting over the past two years has enabled the charity to train eight service dogs and another that specialises in post-traumatic stress.

The Hunting-sponsored dogs include Hunter, Drillbit, Reckless and Bluebell and are all doing well in their training. London was the only pup that didn’t make it through the programme and was adopted by her raiser.
A VETERAN’S STORY

Casey, a former U.S. Army officer who served in combat in Iraq, found that on returning home from war, adapting back to ‘normal’ civilian life was a significant and unexpected challenge. Struggling to reconcile his new life with that he had before, Casey became hyper-vigilant and fearful for the safety of himself and his family. At home Casey continued to behave like a trained soldier: on guard and alert, surviving on very little sleep and sensitive to every noise or movement.

Withdrawing almost entirely from those around him, Casey even limited his interaction with his family. Friends stopped calling by and his young children were confused by their father’s behaviour, which escalated to locking himself in a dark closet, or the bathroom, emerging at night to conduct armed perimeter checks of the property. Eventually it was discovered that Casey had suffered a Traumatic Brain Injury and was also diagnosed with severe PTSD.

It was a phone call from Casey’s wife, Melinda, which prompted Lori Stevens to meet the family and, despite the many similar cases Patriot PAWS had seen, Stevens’ experience told her that Casey was in a particularly bad way.

During the time it takes for a Patriot PAWS pup to complete its programme, the dogs become used to many different people – from their raisers and handlers to trainers, volunteers and finally their owners. The majority of the dogs get accustomed to and enjoy the rotation, moving from one assignment to the next. However, much like the humans they help, dogs’ character traits can vary, with some bonding more immediately and finding it difficult to let go. Called ‘velcro dogs’, these characteristics can pose problems in training and it was suggested that one such dog, a golden labrador named Tyndall, might be unsuitable for placement because of need to bond.

With this loyalty and love in mind, Lori Stevens introduced Casey to Tyndall. “The change” Stevens describes “was immediate” – Casey relaxed as the big, clearly friendly, dog started licking his face in hello. The two received one-on-one training from Stevens who noticed that the bond with Casey brought the true service dog out of Tyndall, who would do anything to help his master.

Through Tyndall’s help and support Casey is once again able to laugh and smile, relax with his family and take trips out. His wife reports that Tyndall dogs her husband’s footsteps, even jumping up to give her a morning kiss after Casey, as he heads off to work.
PAWS FOR THE FUTURE

“Demand is definitely rising” which, according to the Patriot PAWS team, is primarily due to the improvements in the body armour worn by service personnel. Increasing numbers of military men and women are, thankfully, surviving injuries which previously would have proved fatal. However, the injuries – both physical and emotional – are brought home and through the good work of the medical profession, the Veteran’s Association and charities like Patriot PAWS, much is being done to remedy the trauma.

Patriot PAWS currently has more than 100 veterans on its waiting list, which the charity says is 100 too many. It takes, on average, four years for a dog to be placed and Patriot PAWS is focussed on improving this. Shelter dogs have started to be trained for PTSD cases, which takes half the time of full-service training. In addition, they will soon be breaking ground on a new state-of-the-art training centre in Rockwall, with an estimated completion date set for the third quarter of 2016.

Pictured: Patriot PAWS’ dogs in training

Patriot PAWS currently has more than 100 veterans on its waiting list, which the charity says is 100 too many. It takes on average four years for a dog to be placed and Patriot PAWS is focussed on improving this.
‘Fracking’ is the term loosely used for ‘Hydraulic Fracturing’, the technique for recovering oil and gas from shale formations that has been developed so successfully over the last two decades in the USA.

From the development of the earliest vertical wells, one of the most common techniques for completing the production phase was to lower explosive charges into the well and blast through the wellbore lining and out into the geology to release the hydrocarbons. First black powder was favoured as the explosive of choice, then nitro-glycerine with its attendant dangers, and finally high grade HMX and derivations which are still used today in shaped charges. Folklore suggests that HMX is named after ‘His Majesty’s eXplosives’, a post WWII calling that still remains. To put perforating in context, the first patent for an ‘Exploding Torpedo’ was taken out by Col. Edward Roberts in 1865, for a relatively unsophisticated artillery-like shell developed from his military experience.

**PERFECTLY NORMAL**

While wells have become increasingly complex, the essential production techniques have stayed the same and fracking has been in operation for over a century, for stimulating and improving recovery. What has changed is that a modern well may be drilled vertically and then extended horizontally into the target zone. Erle Halliburton first introduced a cementing technique to set steel casing in 1902 which ensured the integrity of the wellbore, isolating it from the various geological strata including a water table. His company was again the first to successfully undertake a Hydraulic Fracturing cycle in 1949.

**SHAPING UP**

In the early 1950s more military technology was applied to the fracking process. Perforating guns were made up of shaped charges set in carriers within a tubular housing and scalloped in predetermined patterns to create the desired weak spots for the explosives to puncture. (See Petroleum Age Bazooka extract). The assembled perforating guns are traditionally wired and loaded by hand at the well site, lowered by wireline to the predestined points in the wellbore, aligned against the casing and detonated in sequence. The effect of this is to punch holes through the steel into the target reservoir to allow crude oil or natural gas to flow back up the bore. This is now the established technique, developed over many decades to initiate the production of oil and gas.

**WATER DRIVEN**

To extract hydrocarbons from shale the same vertical and horizontal drilling operations are performed but must match the complexities of the shale seam. The perforating guns are placed in pre-logged zones, performing multiple firing sequences and sending molten energetics jets several metres into the shale formation. These lateral wells can run for several kilometers long and equally as deep. A further key difference to a simple, vertical well is that after each firing, water, sand and typically detergent are forced down under great pressure by surface pumps through the perforated holes of the casing and out into the shale strata. The water mixture is used to flush through the rock formation, while before it flows back into the wellbore, sand or ceramic beads are trapped in place to hold open the rock fissures so production can continue to flow once the frack fluids have dissipated or been recovered.
Since the petroleum industry’s earliest days, an oilman fortunate enough to strike a producing formation – the pay sand – promptly faces the challenge of retrieving his discovery from far downhole.

Cement casing, developed in 1919 by Erle Halliburton’s New Method Oil Well Cementing Company (today’s Halliburton Energy Services) isolates wellbore zones and guards against collapse. However, a completed well’s cemented casing still stands between an oilman and his petroleum production.

The U.S. Patent Office records a fascinating variety of technologies designed to solve the fundamental problem of safely perforating well casing.

In 1902, a “Device for Perforating Well-Casings,” (Pat. No. 702,128, at left) relied upon a scissors-like expanding mechanism to drive and then retract “perforating levers” through the casing and into producing strata.

A variety of mechanical means of penetrating casings were used, but by the 1930s “bullet” devices using projectiles – usually steel bullets – were far more popular among oilmen.

The tank was a new and terrible weapon during World War I. Attacks on infantry positions produced chaos. By the 1930s, further advancements in German armor had military planners in England and France scrambling to develop counter weapons.

Swiss Army veteran and chemical engineer Henry Mohaupt brought his research to America, where the U.S. Army’s Ordnance Department put him in charge of its secret program to develop an anti-tank weapon.

Mohaupt’s idea for using a conically hollowed-out explosive charge to direct and focus the detonation’s energy ultimately produced a rocket grenade used in the Army’s 60-millimeter, MIA1 Rocket Launcher – the GI’s bazooka.

The industrial potential of shaped charges prompted a Ft. Worth company, Well Explosives Co., to recruit Henry Mohaupt. His 1951 patent submission for a “Shaped Charge Assembly and Gun” brought bazooka technology to the oilfield.

Focused explosive energy easily cut through casing and strata. In the coming years, Welex Jet Services (formerly Well Explosives Co.), DuPont and others continued to explore these opportunities.

Today, petroleum industry R&D creates technologies to go safer and deeper into tighter zones, deeper water and more sensitive environments than ever before. A new generation of patents reflects the demands of higher downhole pressures and other challenges for meeting America’s energy needs.

**Editor’s Note** – Learn more at Google’s searchable patent website, www.google.com/patents, which offers a fascinating research tool. Students, teachers, museums, or just the curious will find an intriguing historical roadmap of oil patch technology since its earliest days.
**SHALE BOOM**

This type of fracking, or more properly Hydraulic Fracturing, has been the technique most commonly associated with the huge growth in production from the US shale basins over recent years. Credited to the pioneering work of George Mitchell during the 1990s in the Texan Barnett shale around Fort Worth, this was a symbiotic relationship with what is now the Hunting Titan Division. These combined applied technologies have led to vast swathes of once ignored resources being reclassified as highly productive and economic hydrocarbon basins even in a low commodity price environment.

**FUTURE FRACKING**

For the future, the industry continues to develop techniques and technologies to meet the increasingly stringent standards that are demanded by both the government and the wider public. Drilling programmes for multi-well operations from a single pad are now the norm since the extremes of horizontal drilling have been exercised. That reduces cost in time and materials as well as environmental impact from consolidation of services on to one site. This increased efficiency has also enhanced safety integrity rather than compromising it. Current field developments have seen, for example, the use of gas to convey proppant into the rock strata to replace water as the carrier.

**H-1 EXPOSE**

Hunting has also accelerated development of new technologies. Showcased at the Offshore Technology Conference in Houston last May, Hunting has recently introduced the innovative “H-1™” Perforating Gun System. This is widely recognised as a major step in the development of cost efficient and effective technology. By completely redesigning the tool string, the H-1 reduces the length, weight and number of connections traditional to a Select Fire Perforating Systems into one simple gun assembly with no wire connections. With fewer parts there is a saving in time and complexity. Because the H-1 uses the charge tube as the electrical conductor there is no exposed wiring to fail and the system combines quick change, plug-shoot and firing head all in the single sub assembly. H-1 is compatible with standard industry ignition products and implements Hunting’s Contolfire® system. Of course it is compatible with Hunting’s T-set® setting tools and is easily loaded with proprietary H-Lok shaped charges. “This is now the safest deployable system in the industry” comments Rick Bradley, President of Hunting Titan.

Combined with Hunting Titan Divisions distribution model, the H-1 has the potential to completely revolutionise the perforating market. It allows for the supply of simple assembly, fully RF-safe guns ready for downhole deployment with minimal well site preparation.

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**Hydraulic Fracturing**

Hydraulic fracturing or ‘fracking’ involves the injection of water, sand and chemicals at high pressure into horizontally drilled wellbores, often at great depth and distance. The casing is perforated and frac fluids pumped into the geology to allow oil and gas to flow back up the wellbore.

1. A mix of sand, water and chemicals are injected into the wellbore.
2. Recovered water is taken for treatment.
3. Natural gas flows through the wellbore and is used to generate electricity or fed into the gas grid. Oil is collected for processing.
4. Wellbore turns horizontal.
5. Pressure from the energetics explosions fractures the shale and creates fissures.
6. Sand keeps fissures open allowing natural gas and oil to flow into the well.
7. Mixture of water, sand and chemical agents flow back to the surface for processing.
The famous signing of the Magna Carta, or “Great Charter”, marks a seminal moment in the declaration of individual citizens’ rights in England. It was first drafted in June 1215 by the Archbishop of Canterbury as a mechanism to keep the peace between the notoriously unpopular King John and a group of dissident barons. Despite early problems, the charter became a fundamental part of English political life, typically renewed by each monarch and is held directly responsible for the establishment of the post of Lord Mayor to protect the freedom to trade. Eight centuries later, the traditions associated with the charter are still upheld. This includes the celebrated Lord Mayor’s Parade and gathering of London’s Livery Companies and Guilds which represent the many trades at the the City’s heart to this day.

**BAD KING JOHN**

History has not been kind to King John, especially when compared to the legacy left by his much loved brother and predecessor, King Richard “the lion-heart”. Most of John’s reign was dominated by his war with France, which saw England lose – and fail to regain – Normandy / Anjou and most of its other possessions to the French King Philip II. During this time, the King was also locked in conflict with the Church. Having disputed the Pope’s choice of Archbishop of Canterbury in 1205, England was placed under a papal interdict which suspended all religious services, including baptisms, marriages and even burials. The disagreement led to John’s excommunication before he eventually conceded to accept the nominee and provide an annual financial tribute, which was paid to the Pope for the following 150 years.

‘Bad King John’, as he became known for his repressive policies and uncompromising taxation, ruled under the principle of *vis et voluntas* or “force and will”. This brought trouble with his barons who in 1215 marched on London and held it to ransom to protest against the extensive taxes that had been raised on them. John, weakened by his failure in France, eventually sought peace and agreed to the rebel’s demands – which were drawn up in a document, now universally known as the Magna Carta.

**A SACRED CONSTITUTION**

The meeting between the King and his barons took place on the banks of the Thames in the watermeadows of Runnymede, which sits just west of London in close proximity to Windsor Castle and what is now Heathrow Airport. His agreement to the charter was remarkable as it set clear limits on the power of the monarch, defined the liberty of the Church and confirmed the feudal obligations of the barons. Considered to be the first constitution to be written in history, perhaps most significantly it also granted eternal rights to all Freemen and their heirs.

Despite the political wrangling that continued in the following years, the Magna Carta remained a powerful document.
into the nineteenth century. It is even thought to have influenced the formation of the American constitution in 1787. Written in Medieval Latin using quill pens on sheets of parchment, the original charter was formed of a single unbroken text and sealed with the royal great seal. Four similarly hand written copies are known to exist.

MODERN LEGACY

Despite carrying little legal weight, the Magna Carta still holds an iconic status in British society. The historian James Holt explains that its survival “is a reflection of the continuous development of English law and administration”, while W.L Warren observes that “many who knew little... about the content of the charter have, in nearly all ages, invoked its name... for it meant more than it said”.

A dedicated Memorial at Runnymede was established by the American Bar Association in 1957 and receives many thousands of visitors a year.

To mark its 800th anniversary, the four 1215 charters were featured together for a single day in February 2015 at the British Library, in London. Later in the year a number of organisations held further celebratory events, including a ceremony attended by luminaries from the UK and America at Runnymede including Queen Elizabeth II.

LORD MAYOR

By the year 1215 London was already the largest city north of the Alps. With an estimated 15,000 inhabitants it was rich, busy, well-connected and very hard to govern. To keep the influential City dwellers onside, the troubled King John granted approval for the city’s merchants to form a medieval commune, under the provision that the Lord Mayor of London (a new position at that time) would commit to making an annual passage from the safety of the City, upriver through Westminster to swear loyalty to the Crown.

Until the late 19th century the Law Courts were in the Palace of Westminster and the logical and easiest way to make the journey was by river, the Thames being London’s largest highway.

A flotilla of ornate livery barges, headed by the Mayoral barge, would progress along the Thames to Westminster accompanied by a veritable swarm of smaller craft. It is for this reason that the “floats” in any Carnival parade on the roads are so named. Strangely, the Worshipful Company of Shipwrights, with which Hunting (along with the Ironmongers and Coachmakers) has long had an association, has never had its own barge at the pageant, but in the first half of the eighteenth century they did commission a splendid model of one and there are images of it in the National Maritime Museum at Greenwich. The model depicts a large barge with an estimated eighteen rowers and a menagerie of animals mounted on the coach roof. It is probable that it was used as a demonstration model when quoting for the building of barges for the various Livery companies – who else but Shipwrights should have built them?
The power of the Lord Mayor could match that of any unruly barons and indeed, so grand was the position, that over the years the Mayor became a celebrity and his journey grew so popular that by the sixteenth century it was known as the Lord Mayor’s Show.

To this day the tradition is upheld and the Lord Mayor has taken the journey, through plagues, fires and wars, to pledge allegiance to 34 British monarchs. The power of the Lord Mayor could match that of any unruly barons and indeed, so grand was the position, that over the years the Mayor became a celebrity and his journey grew so popular that by the sixteenth century it was known as the Lord Mayor’s Show.

The most recent Lord Mayor to take part in the annual Show is Lord Mountevans, Jeffrey Evans, fittingly a specialist in shipping and a liveryman of the Worshipful Company of Shipwrights (Prime Warden 2006-7) as well as a liveryman of the Worshipful Company of Goldsmiths and of the Worshipful Company of World Traders.

A reflection of its heritage and tradition, the Show features representatives from the military, livery companies and civic life, as well as charities, youth groups and overseas organisations. As is customary practice, the parade was held on 14 November, beginning with a River Pageant up the Thames, before the Lord Mayor’s procession through the streets of London and a spectacular fireworks display.

The last Lord Mayor’s water procession was in 1856. This was less than two years before The Great Stink when the Thames resembled little more than a giant sewer and, by then, many companies had disposed of their barges because they could not afford replacements or expensive repairs, resulting in a dwindling of numbers.

The remit of the Lord Mayor remains wide and today presides over the City’s governing bodies, the Court of Aldermen and the Court of Common Council.

A truly unique event it brings together some 7,000 people, 200 horses and more than 150 floats, which make the three mile procession from Mansion House, past St Paul’s Cathedral to the Royal Courts of Justice and back to Mansion House via Victoria Embankment.
A forward support base is being established for the Cape Town manufacturing facility on dockside premises in the port of Mombasa, Kenya. When complete this will have a repair and certification capability with associated machine shop of approximately 2000 sq m. Over 5500 sq m of yard space will provide a storage, bundling and packaging area. The Joint Venture with Alpha Group will enhance the East African footprint for Hunting and provide essential close support services for operating clients and the major service companies alike.

Alpha Group has over half a century of trading experience in Sub-Saharan Africa, where it has established a strong presence in the marine and logistics field as well as for aquaculture and food exports. Together with Hunting Energy’s upstream product range, this provides a powerful combination of industry leaders.

All the casing on the deck of the Alpha vessel in the image was supplied by Hunting Singapore for a Tanzanian offshore drilling programme involving three offshore workover wells and two new prospective wells. The casing was delivered to Alpha’s EPZ facility (a duty free zone) in the port, then bundled and consolidated with all the other materials from Shanghai and Singapore. It was then transhipped at Alpha Group’s private jetty and onto the multi-purpose vessel, named Alpha Kirawira, for direct delivery to Songo Songo Island. This is the fifth such operation this year.

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HEALTHY LIFE, HAPPY LIFE

A family day held in Singapore for regional employees was the launch pad for Hunting’s Workplace Health Promotion (WHP) programme 2015-16. The day was held at the striking Marina Barrage and over 200 employees and family members attended.

The day focused on how maintaining an active lifestyle can lead to a healthy and happy life, with strong mental and social wellbeing. A mass aerobics class was held, which was particularly enjoyed by the children, as well as announcements about who had represented Hunting at the inter-company sports competitions. Funding came from the Singapore Health Promotion Board, providing financial support to start and sustain a workplace health programme. Even the pollution crisis, or ‘Haze’, held off for the afternoon, and provided the families with clearer air for their activities.

The fun-filled afternoon also involved a picnic, kite flying and group games on the grassy rooftop of the Barrage, overlooking Singapore city, until the sun went down.

A HAT-TRICK FROM PATRIOT PAWS

For the third consecutive year, Patriot PAWS has been selected as the beneficiary of the Hunting Art Prize, the annual award for painting and drawing in North America.

Over the past two years Hunting has channelled $285,000 to Patriot PAWS, which trains and provides guide dogs to disabled American veterans, free of charge. To date, the company’s contribution has funded the specialist training of 10 service dogs. The pups are taught to perform a wide range of essential functions including pulling wheelchairs and gaining access to rooms and buildings.

“It has been a very special experience to support this organisation and its mission... We’re proud to have this opportunity to continue our support” said Dennis Proctor, Chief Executive of Hunting.
NORTHPOINT GIVES THANKS

Hunting’s Northpoint office has recently held a Thanksgiving food drive. Pictured are members of the team with their impressive haul which was donated to the Montgomery County Food Bank.

ASIA PACIFIC’S SECOND TECHNICAL FORUM

Hunting Training Academy in Singapore hosted the second annual Technical Forum for two days in September, bringing together fifteen Hunting technical and engineering professionals from across Asia Pacific. They collectively learnt how technology and innovation can help the company meet its goal of delivering Total Customer Satisfaction through discussions and knowledge sharing.

This forum expanded the scope from the inaugural event of the year before to include topics related to the company’s new manufacturing capabilities in a Perforating Guns System and Slick-line tools / PCE. In total 22 projects were shortlisted for presentation and discussion at the event. Showcased were the collaborative effort Hunting has made with its key customer to reduce lead time in accessory manufacturing and also how applying Continuous Improvement and Lean principles has achieved improved performance in on-time delivery.

As Hunting increases its presence in Asia Pacific, engineering and manufacturing technology will become increasingly important. The Technical Forum is a hive for collaboration that will form the bedrock of Hunting’s business support framework, enabling operational service excellence as a sustainable competitive advantage in the market place.
Perforating Team welcomes new manager

Bringing 25 years of technical knowledge, Andy Smith has joined Hunting’s Titan Division in Aberdeen as the new International Sales Manager.

Andy joins the company from Halliburton, where he held the position as Manager and Technical Manager in Vietnam for five years.

Physionet

Former Hunting employee, Peter Thompson, who was previously Managing Director of Hunting Technical Services, is the founder of Physionet, a volunteer operation which sends mobility equipment for the disabled and hospital hardware to eastern and central Europe and developing countries around the world. Transported in 40ft shipping containers, Physionet collects pre-owned equipment including zimmers, crutches, bikes, wheelchairs and distributes to those most in need.

Among the countries helped by Physionet, Fiji’s Spinal Injuries Association has received seven of the containers to date, holding 3,670 items designed for those with special mobility needs, with an estimated value of £1.4 million.

Other countries supported by the dedicated and vital work of this organisation includes: Bulgaria and Ukraine, Benin, the Democratic Republic of Congo, Gambia, Ghana, Kenya, South Africa, Bhutan, India, Sri Lanka and Thailand.

Lean Manufacturing

In June, PT Hunting Energy Asia, in Batam, started a three month project to review current manufacturing processes in order to eliminate waste processes and improve production. Yandi Gunawan, Engineering Team Leader, led the study which was able to make various improvements mostly by reorganising the layout of the shop floor.

For instance, the placing of equipment at the main production line was found to be inefficient and the manual handling too time consuming.

The team relocated machinery and installed racks to rest products, improving the process and workers’ safety by eliminating most of the heavy manual tasks. Bandsaws were also relocated to reduce the number of operators needed to manage the machines, allowing them to be re-deployed for other production needs.

The whole study has resulted in a leaner production layout and will help the plant deliver as much as 30 percent less waste with improved time and manpower efficiencies.

The Sporting Life

Hunting Energy Services recently staged a company Badminton and Basketball tournament in Singapore. More than 20 employees played or supported the 2015 Badminton Challenge, with six doubles teams competing for bragging rights. The friendly competition ended after more than two hours of exciting play, with the champion team comprising Mee Fang, Jimmy Lim, Lee Yat Cheng and Chan Weizhi.

The basketball competition took place a few weeks later, the second in a best-of-three contest. The blue team had won the first round, while this time the white team fought back, winning 52 - 44. This means the final match in the best of three contest in a couple of months is finely poised for an exciting final.
DUBAI SPE GOLF CHAMPIONSHIP

In his role as Section Chairman of the Society of Petroleum Engineers for Northern Emirates, Oumer Tahir, TSM MENA OCTG, has the responsibility of organising the group’s Annual Golf Tournament. The event, which is sponsored by Hunting, is attended by more than 120 representatives from the world’s oil and gas operating and service companies.

Participating firms include: Petronas, Saudi Aramco, BP, HAL, Shell, Packers Plus and Baker Hughes.

The society provides unique opportunities for its members to network and share expertise, offering a platform to exchange news, ideas, best practices and lessons learned.

CHILDREN IN NEED

Eid al-Fitr, or ‘Idul Fitri’ as it is known in Indonesia, is the last day of Ramadan, where Muslims break their fast and are encouraged to be as charitable as possible to those in need. Employees linked their celebration with the company’s Corporate Community Involvement event. This saw PT Hunting Energy Asia’s Indonesian staff organise a ‘breaking of the fast’ for all 30 orphans from Walisongo Orphanage in Batam. The children also received lucky red packets, school stationery sets and new clothes, as it is customary to wear new clothes for Idul Fitri. The whole event was made possible by the generosity and time put aside by the company’s employees, and Hunting matching contributions.
HUNTING ART PRIZE
2016 JUDGING PROCESS IS NOW UNDERWAY FOR BUDDING TEXAN ARTISTS

A call for entries has now been issued for the 36th edition of the Hunting Art Prize, which annually draws work from many hundreds of hopeful Texan artists.

Artists were able to participate by completing an electronic application form available at www.huntingartprize.com. The deadline for entries was midnight on Monday, 30 November 2015 when the two-tiered judging process begins. The winner of the 2016 Prize will be announced at a gala in Houston on 30 April 2016.

FLIGHT OF DELIGHT

As part of Singapore’s Golden Jubilee celebrations, more than 30 staff in Singapore volunteered to take 25 elderly people from the St John’s Home for Elderly Persons to the world’s largest aviary, Jurong Bird Park.

The half day trip was the first for many to the park, and the group was treated to a vibrant and exciting show featuring majestic birds of prey. Later, the group was given the opportunity to feed colourful Lory birds in a sprawling nine-storey high “Lory Loft”, before heading home.
FLYING THE HUNTING FLAG

Fierce competition was in play at Hunting Energy Services in October, as the Fitness & Health International Sports Showdown competition took place. Employees participated in Badminton, Table Tennis and Basketball against other companies also participating in workplace health promotion programmes. All players represented the company well, showing great sportsmanship and teamwork. Two table tennis teams came away with medals, with Vincent Xie, Zhao Jianhau and K. Rajoo winning Gold, while Philip Li, Chiw Yuen Onn and Aaren Lee picked up Silver.

SKILLS TRAINING FOR FLEXIBLE DEPLOYMENT

Hunting Training Academy (HTA) has been working closely with Hunting Energy Equipment Co. Ltd (HECE) for a large part of the year to review manufacturing processes. It has decided to invest in cross training for machinists and production staff and has started pilot schemes to train staff in laser cutting, scalloping, swaging and assembly work. Lathe machinists are also being scheduled for training on CNC machines and vice versa, with on-the-job training over eight weeks and final assessment by HTA. The aim is to increase productivity and available resources by increasing the skills pool and making staff more flexible in their deployment. There are plans to implement this across the region in 2016 following these pilot runs.

HUNTING CANADA PROMOTION

Sumathy Ponnambalam (Sam) has been promoted to Controller for Hunting Canada. This includes the Canada Pipe, Canada Manufacturing, Canada Drill Tool and Canada Holdings Divisions. Since joining the company in May 2014 Sam has progressed in her role as Controller, taking on full management of the accounting and financial processes for all Canada Divisions. Sam has held various Controller positions with Cardell Lifestyles, Waste Management and EOS Pipelines.
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