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EDITORIAL.

Next year will see the 100th Anniversary of the start of World War One in 1914 and there's bound to be a huge amount of interest in the media, both published and televised. The sad fact that virtually all the veterans of the Great War have now passed away will no doubt give the commemorations added poignance, and while the Great War is widely accepted as the first 'world war' where mechanized warfare started to take over from traditional warfare fought by the infantry, it didn't stop the needless slaughter of millions of soldiers on the battlefield from all sides, and 2014 will be an opportunity to remember the sacrifices made by those who

fought in the Great War. No doubt there will be a certain amount of involvement from the military vehicle fraternity, even if the numbers of WW1 vehicles in preservation is considerably smaller than those dating from WW2 to the present day, but one vehicle that will be taking part is the beautifully restored Albion truck featured in this issue and shown below. The truck, dating from 1916, was restored by its owner specifically to be ready in time for the 2014 centenary commemorations and you can read all about the restoration of the truck on page 14 of this issue. I'll be back as usual next month with another collection of fascinating articles – Ed.



Ian Young
Editor



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INTERNATIONAL

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UP FRONT

NEWS and REVIEWS...

Liberty B Trucks Head to New Zealand

Following the completion of his two-part feature on the restoration of Great War trucks, Tim Gosling emailed me with some interesting news regarding a pair of Liberty B truck chassis dating from World War One, which recently came to light. Our thanks to Tim for keeping us informed and this is what Tim said – Ed.

Hi Ian,

I mentioned in my 'Great War Restorations' articles that the best source of WW1 trucks was France and the USA. Since then I have received this photo that shows a WW1 US Liberty B truck chassis with a second one in two halves perched on top of it. I understand that the American owner had died and the site had to be cleared or they would be cut up for scrap. Well, I am pleased to say that after a long sea voyage they arrived at their new home in New Zealand where the owner is looking for parts to complete their restoration. This is probably the first Liberty B truck to ever go to New Zealand so it will make the search for parts even more difficult.

All the best - *Tim*



Tarian Armour Spotted on Warthog

A recent email and accompanying photo sent in by Roland Groom referred to an example of the British Army's Warthog all-terrain tracked vehicle undergoing tests at Bovington (shown bottom) with the locally based Armoured Trials & Development Unit . The vehicle had been fitted with a full suite of the relatively new Tarian add-on armour produced by a local Dorset based firm. In laymen's terms the Tarian armour is essentially a hi-tech composite woven rope/cloth-like material with ballistic properties that can be formed into a netting that is arranged around the exterior of the vehicle and acts in the same way as conventional bar armour, which has been widely used in recent years on vehicles serving in Afghanistan for protection against RPGs. The Tarian armour has the advantage of being easier to produce and is substantially lighter than the conventional bar armour, thus increasing the payload ability of the vehicle it is fitted to. Also shown here is a Tarian-equipped Foxhound armoured patrol car, and by way of comparison a Warthog fitted with the conventional bar armour, both photographed at the Defence Vehicle Dynamics show this year. My thanks to Roland for sending in the photo – Ed.



Photo - Foxhound with Tarian armour DVD 2013



Photo - Ambulance variant Warthog DVD 2013



Photo - Warthog with conventional bar armour DVD 2013



Photo courtesy Roland Groom - Warthog with Tarian armour Bovington 2013

War Effort Exhibition

The Coventry Transport Museum recently launched a new exhibition in their main foyer area under the title 'War Effort'. The exhibition traces the British motor industry during World War Two and features a collection of exhibits, which more importantly for readers of MMI includes a number of military vehicles. The exhibition tells the incredible story of how in the 1940s, the UK's motor industry supported the war effort with the production of military vehicles, aircraft and all manner of military equipment, setting up so-called 'Shadow Factories' to manufacture thousands of military vehicles and much-needed aeroplanes, munitions and equipment.

A programme of special events complements the exhibition and includes lectures and talks on various subjects including 'Women in World War II', a 'Shadow Factory Bus Tour', plus a number of activity sessions aimed at families. Most activities are free, with some incurring a small charge of just a few pounds, but it is advisable to book in advance to avoid disappointment.





Amongst the vehicles in the exhibition was one I recognised immediately, namely a Hillman Tilly, in fact it was owner Brian Henson who tipped me off about the exhibition in the first place. I've known Brian for some years now and regular readers will no recognise Brian's Tilly as it appeared on MMI's front cover some years back!

Close by was a privately owned Universal Carrier, on loan to the museum for the duration of the exhibition, together with a 1944 Dingo Scout Car, and the stunning Humber staff car that belonged to Field Marshall Montgomery, which is normally displayed upstairs in the museum. Other exhibits included a pair of wartime motorcycles, a wartime Fordson tractor, the cockpit section of a Blenheim bomber, a cutaway Merlin aero engine and numerous other exhibits.

Entry to the exhibition is FREE, as is entry to the museum itself, which has over 240 cars and commercial vehicles, 94 motorcycles, 200 cycles and 25,000 models and is well worth a visit if you've never been before. The 'War Effort' exhibition runs until the 5th January 2014.

The museum is located in Coventry city centre, Millennium Place, CV1 1JD and is open between 10.00am and 5.00pm daily, with the last admission at 4.30pm. For more details check out their website at:

www.transport-museum.com

British Jeep Curiosity



Des Penny sent in this copy of an old photo of his wife's great uncle, which was discovered amongst a collection of old photos whilst cleaning his deceased mother-in-law's house. Some information was apparently written on the reverse of the photo, which tells us that it was taken on the 1st September 1946 "In front of JHC". Des takes this to have some kind link with the Jewish faith given the Star of David on the sign on the building behind the Jeep, but other than that knows little of its significance. Could it be the Jewish Heritage Centre or Jewish Holocaust Centre?

The inscription also tells us that the man in the rear seat of the Jeep is Frankie Hughes, the great uncle in question, but the markings on the Jeep may be of interest to readers? While Des realises that it's a British Army Jeep, he has no notion as to what unit it was serving with at the time, but if anyone out there can help to fill in the blanks we would love to hear from you – Ed.

Stolen Jeep!

I had an email forwarded to me shortly before going to press regarding a stolen Jeep. Apparently the November 1944 dated Willy Jeep was 95% restored, with chassis No. 390342, body tub No.152906. It also had set of modern rear springs so sat inches higher than normal, was fitted with split rims with radial tyres, the bumperettes had numerous holes drilled in them and the bonnet had reinforced strips added, but no canvas or bows were fitted. A set of Hotchkiss wheels with bar grips was also stolen. The Jeep was stolen from north Kent area, it's out there guys - lets find it - it must be offered for sale somewhere? If you have any information regarding its whereabouts speak to Fred Astbury on Tel: 07789173823, or Nick Cowles (Weald Area) or call the Police.

Famous Name

On the previous pages you will have read about the new 'War Effort' exhibition at the Coventry Transport Museum, and as Brian Henson's Tilly was part of the new exhibition he was invited along to the opening of the new exhibition and whilst at that event he met up with Lord Rootes, a descendent of the Lord Rootes who founded the Rootes Group. Being a little cheeky Brian asked Lord Rootes to pose for the photo shown to the right.



SAS Guard Dog

Whilst attending the Welland Steam Rally (report to follow soon) I spotted an ex-Sas Land Rover Series IIA 'Pink Panther', nothing unusual there you might think, but then again looking closer I found this rare 'beast' to be guarded by an 'active alarm system', namely a pooch! I guess that when you have an expensive motor with all sorts on goody bits draped over it you want to be sure that nothing goes missing! Having said that I don't think this particular hound was capable of anything more than a good licking! Still, it sure beats a simple 'Keep off' sign - Ed.



Revell New Kit Releases

Revell have sent along a couple of new releases this month, the first of which is an addition to their extensive 1/72 range of military vehicles. The Sd.Kfz. 251/16 Ausf C (Ref. 03197) is based on one of their existing models of the German WW2 half-track, but represents the flamethrower variant. The kit is supplied on a total of four sprues moulded in sand coloured plastic, three of which are the existing kit while the fourth contains the additional new parts. A short length of string and a decal sheet is also included along with a very comprehensive set of instructions. The tracks on the half-track are supplied as plastic mouldings in the 'link & length' style, which in opinion is the best compromise in terms of accuracy and ease of construction. Overall it looks to be an excellent little kit that will be pleasing to both the beginner and seasoned model maker.

Our second release this month is a slight departure in that it's a 1/48 scale kit of the US Navy PCF Fast Patrol Craft, as used by the Americans during the Vietnam War. The kit isn't actually a new model and has been around for some years, though largely available in the US, but has now been repackaged and released in Europe. The kit itself is moulded in pale grey plastic with the finished model just over a foot in length. Sadly with this being an older kit the difference in the quality of the mouldings is noticeable, lacking the fine detailing we have come to expect from more recent Revell releases. That said it's a decent enough model and with a little extra work can be built into a well detailed model.

Revell model kits are available from all good toy and model retailers. For further information visit: www.revell.eu



KFS 1/24 FV432 Mk2/1 APC...

Happy 50th Birthday FV432! To celebrate the 50th anniversary of the venerable FV430 series coming into service with the British Army in 1963 (and still in service today), the next release in the series of 1/24th 'Classic British Military Vehicles' available from Kit Form Services is the FV432 Mk 2/1. The model is fully detailed inside and out, complete with folding crew seats, detailed drivers station, Larkspur radios, removable engine decks and a lift out K60 power pack. All doors and hatches are working, including the rear door, commander's hatch, driver's hatch, folding mortar hatch and front access panel. For complete accuracy and the highest level of fine detail, the tracks and sprockets have been CAD drawn and Rapid Prototyped with the tracks cast in white metal as individual links. Etched mesh parts are included to create a range of roof stowage baskets. Pre-coloured clear cast lights and a complete 40-page pictorial instruction booklet are also included.

The inclusive decal set includes a 'common to all vehicles' section plus markings for specific theatres including UN, BATUS, BAOR, Gulf, Bosnia and FV432 ambulance markings, for those wishing to tackle the quite simple conversion from APC to ambulance role. A complete Wombat 120mm anti-tank gun role fitting kit is due to follow shortly for our Wombat kit No TQ-210.

Further planned conversion kits for the APC kit are set to include the FV438 and FV432/30 Rarden Turret. 2014 also sees the introduction of the FV434 REME fitters vehicle. The model itself is 215mm in length, and the parts count stands at - 187 parts in the usual very high quality polyurethane resin, 250 in white metal, of which 200 are track links (176 for use with 24 spare) 337 in photo-etched brass, of which, 100 are detail bolt heads with plenty of spares. The planned release date 30th August and the kit will retail at £260.00GBP (£216.66 outside EU).



Russian GAZ-69 4x4 in miniature...

Des Penny was also kind enough to send me a couple of 1/43 scale diecast models of the GAZ-69 4x4 that he came across in a local pound shop. The models are apparently remainders from a part work series and represent a civilian fire appliance variant of the GAZ-69 and what looks to be a runway sweeper, fitted with a front plough and roller between the axles. Both are nicely detailed, and at a £1 each aren't exactly going to break the bank, plus they could easily be converted into military variants. So the next time you're in your local pound shop take a look and see what's on offer, you may be surprised by what you find there! My thanks to Des for my 'prezzies' – Ed





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Centenary Man



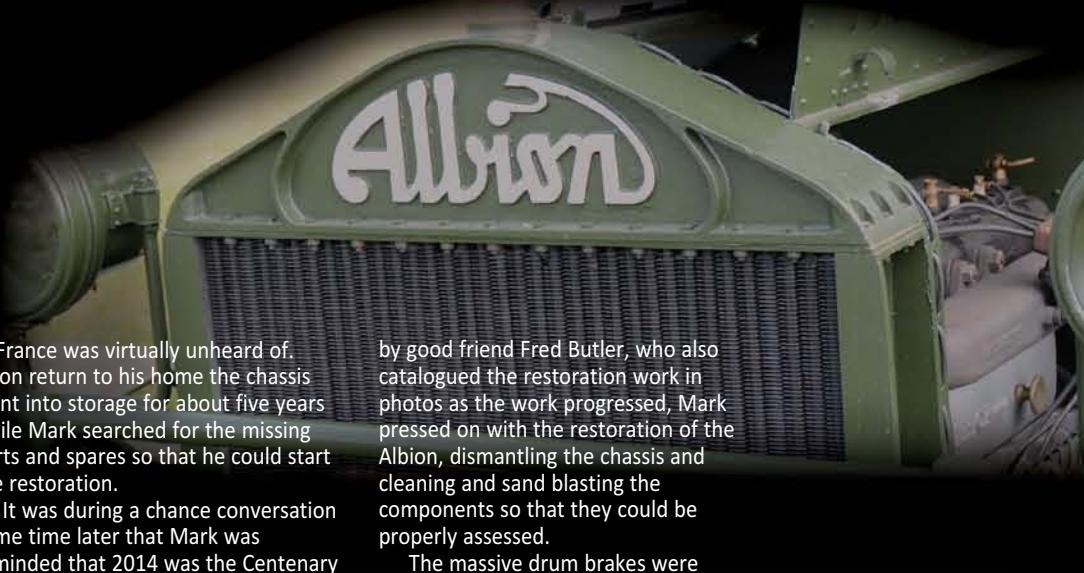
Above: a cast brass figurehead of 'Old Bill', Bruce Bairnsfather's cartoon character from World War One, now adorns the radiator of the Albion.

A keen collector of early Albion vehicles, Mark Farrall had up until a few years ago always concentrated on civilian types, but upon learning about the existence of a 1916 Albion A10 chassis at a farm in Essex, the direction of his collection would soon change. As anyone who has had any dealings with the potential purchase of Great War era vehicles will know, finding a vehicle is one thing, but trying to broker a sale is

quite a different kettle of fish! Mark made numerous phone calls to try and secure a sale, but the owner was not prepared to sell the Albion, however, whilst on business in Kent, Mark phoned the owner on the off chance to see if he could view the chassis while he was in the general area. Finally the owner agreed and after travelling up to Essex to see the chassis a deal was eventually struck and Mark was the proud

Mark Farrall is a keen Albion truck enthusiast, and the impending 100-year Centenary anniversary of World War One provided him with a new restoration challenge





owner of a 1916 Albion A10 WD truck. It wasn't long before a low loader had been dispatched to fetch the chassis, and upon return to Chester, Mark was astonished to find that the whole package was original, with the engine, gearbox and chassis all carrying the same serial numbers, which for a vehicle that had been through the war

in France was virtually unheard of. Upon return to his home the chassis went into storage for about five years while Mark searched for the missing parts and spares so that he could start the restoration.

It was during a chance conversation some time later that Mark was reminded that 2014 was the Centenary Anniversary of the start of World War One, and it was suggested that he should try and finish the restoration of the Albion and return the truck to its original WD specification in time for the celebrations, which was something of a departure from Mark's more usual interest in civilian Albion trucks.

2012 was a big year for Mark with the restoration of the Albion beginning in earnest by early September. Helped

by good friend Fred Butler, who also catalogued the restoration work in photos as the work progressed, Mark pressed on with the restoration of the Albion, dismantling the chassis and cleaning and sand blasting the components so that they could be properly assessed.

The massive drum brakes were found to be covered in grease and therefore had to be stripped and relined, and numerous smaller parts were sand blasted and repainted in readiness for reassembly onto the vehicle. While many of the nuts and bolts came apart with comparative ease, especially when considering the age of the vehicle, there were some stubborn ones to be dealt with, but a cutting disc made short work of them!

LEFT...

The chassis was completely stripped of all components so that the restoration could begin. Unusually the engine, chassis and gearbox numbers all matched each other.

BELOW...

The first show Mark attended was at the Beamish Museum, but there's no doubt there will be many more next year.





PHOTOS...

1: here we see the inside face of the rear wheel and the drive chain teeth.

2: the driver controls gives an idea of the condition of the Albion upon arrival.

3: the rusty rear leaf springs weren't in too bad a condition.

4: the Albion's chassis features several tubular cross members.

5: close-up of the front drive sprocket that drives the chain to the rear.

6: the brakes were covered in oil and grease and needed rebuilding.

7: the front leaf springs were in poor condition, having separated.

8: the refurbished front axle and springs await refitting to the chassis.

9: the huge king pins needed some persuading to get them free.

10: here we see the gearbox of the Albion after removal.



By the 11th November the first coats of paint were being applied to the chassis rails, tubular cross members, brake drums, brake back plates, axle, chain adjusters, rear springs and gearbox mountings. The engine had been stripped and the cylinder block and other engine parts were ready for reconditioning and reassembly.

The time came for the front beam axle to be dismantled, which called for a sledgehammer to release the large king pins, which were seized solid in the axle. Thankfully a few heavy strikes and the pins started to move, much to the relief of all concerned! By now it was early December and the pace of the restoration was beginning to quicken. The addition of the reconditioned chassis cross member tubes and various brackets and fittings finally meant that Mark could start to see some progress for the many hours spent so far on the restoration.

With Christmas approaching fast there was a bit of a push to get as much done before the holiday season, which inevitably results in too many

hours in front of the TV and not enough time in shed! The front axle refurbishment was well under way in preparation for being added to the chassis, and yet more fixtures and fittings were added to chassis.

Work started cleaning and freeing off the gearbox linkages and the rear brake back plates were finished and refitted. By Christmas Eve the front springs and slippers had been fitted to the chassis and the refurbished gearbox was once more mated to the chassis, but now it was time for a well-earned break over the holiday period.

NEW YEAR

2013 began with Mark and Fred pressing on with the restoration of the Albion, and freshly enthused from their break over the Christmas period work carried on apace. By the 6th January the front axle, stub axles and front wheels had been fitted, and the gearbox linkages and fittings were now being added. By the end of January the firewall was being fitted and the new bonnet had arrived and was trial fitted.





Soon after in early February the timber for the rear body arrived and work on the body started.

The body, which was completely missing from the original chassis, was created using a variety of reference sources and old photos. Work on the body progressed quickly and the headboard behind the cab, bearers for the rear load bed and side panels were soon up and together and by mid February the truck was starting to look more like a truck and not just a collection of parts!

Soon after the foot boards, wooden surrounds for the fire wall and remaining woodwork for the cab had been added and the frame for the cab roof had been built and fitted. All was progressing well and then Mark received a phone call from Colin Slater at the Beamish Museum, asking if Mark could bring the Albion up to the museum for a forthcoming show. Ordinarily this wouldn't have been a problem, but with the show being on the 12th April, time was bit tight to get the truck finished to state where it could appear at the show!

After some thought it was decided to try and get the Albion finished in time for the Beamish show so work began once more with renewed vigour and more help in the form of Mark's dad, Eddie. With only six weeks before the show the deadline to have the truck completed was going to be tight, but Mark, Fred and Eddie were confident that if they burnt the midnight oil they could do it.

BIG PUSH

With the April deadline fast approaching the painting began in early March, but without a spray booth big enough to take the Albion and the weather being cold, the paint wasn't drying as well as hoped. The new mudguards had arrived around the same time and were drilled and test fitted so that they could be painted prior to final assembly. The tailboard was also constructed and by the end of March the engine had been overhauled and painted in readiness for fitting to the chassis and the final assembly of the remaining parts.

PHOTOS...

11: after much work the chassis finally starts to come together again.

12: front view of the refurbished engine back in place in the chassis.

13: unusually the gearbox and rear differential is at the rear.

14: close-up of the refurbished engine in place in the chassis.

15: gleaming new rear mudguards awaiting paint.

16: the new bonnet panels are tried against the radiator.

17: Mark works on the wooden rear body panels.

18: almost there - the Albion starts to look more like a truck again.

19: Mark attaches the canvas to the frame of the Albion's cab.





20



Mark (right) and Fred congratulate each other on getting the Albion finished in time for the Beamish Museum event.

"...while there were still some finishing touch breather and take pride in what he and his he

April 2nd and the firewall and cab was virtually complete and the inlet manifold and carburettor were fitted to the engine and the timing gears set up so that the cover could be refitted. At the same time Mark took the opportunity to fit the roof canvas for the cab, while at the same time planning his next move.

With just ten days to go before the planned outing at Beamish there was still a lot to do to get the Albion running let alone finished! The timing cover, sump, oil pump and radiator were just a few of the parts to be fitted before Mark could even attempt to start the engine. The magneto mounting base had to be fabricated before it could be fitted and the radiator mounted and adjusted to fit the bonnet mounts. With the pace of work now quickening as the day of the

show drew nearer the new fuel tank arrived and was duly fitted, and with the time for the starting of the engine almost upon them, attention turned towards the clutch assembly.

The clutch on the Albion is an odd set up. The clutch plate has no linings, instead they are riveted to the pressure plate and the flywheel, but on the Albion the original clutch plate had rusted away apart from the centre boss, so the boss was machined and fitted to an old circular saw blade and the clutch linkage adjusted and set up. Modifications such as these are typical for the restoration of a vehicle as old as this, where spare parts are either difficult to source or none existent.

With just a couple of days to go the rear mudguards were fettled, painted and fitted together with the associated brackets. The heavy-duty drive chains



21



24

PHOTOS...

20: Mark's attendance at the Wartime in the Vale show was a new experience for him.

21: the Albion is still awaiting the canvas tilt for the rear body.

22: by the time of the third show Mark had fitted the rear canvas.

23: the headlights were also added in early July and are period items.

24: the beautifully restored engine runs like a sewing machine!



23



27



28



PHOTOS...

25: the refurbished front wheels retain the original solid tyres.

26: close-up of the rear wheel clearly showing the drive chain.

27: the cab of the Albion is a very basic environment compared with modern trucks.

28: here we see the fully refurbished front radiator complete with 'Old Bill' mascot.

29: looking beneath the rear of the truck we see the two drive chains and drive sprockets.

30: close-up of the inner face of the right hand rear wheel showing the drive sprocket and chain.

31: the Albion is started in the traditional way with a starting handle and normally starts first turn of the handle.

...he had to do, Mark could at least take a bit of a breather and take pride in what he and his helpers had achieved..."

were also fitted and adjusted and the chain guards fabricated and fitted.

Once the paint had finally dried, the sign writer set to work adding the finishing touches, working around Mark and his team as they finished off the Albion. By now it was clear that even more time would be needed in order to meet the deadline for the Beamish show so Fred took a day's holiday to help finish off the truck and Mark's working days started running well into the night and early hours, finally finishing at 3.00am on the eve of the show. That final night before the show was make or break for Mark as up until now the engine hadn't even been started! Mark swung the starter handle to fire up the engine and thankfully it burst into life, much to the relief of all involved, and after a few final adjustments ran like a sewing machine.

SHOW TIME

The day of the show came round and at precisely 11.45am on the 12th April the Albion was loaded onto the transporter and was on its way to its very first showing at the Beamish Museum. It was well received, attracting a great deal of interest from visitors and museum staff alike, and while there were still some finishing touches to do, Mark could at least take a bit of a breather and take pride in what he and his helpers had achieved in what was a very short space of time.

Just over a month later and the Albion made a second outing to the Wartime in Vale military show, which for Mark was something of a new experience as it was the first military-themed show he had attended, but one he obviously enjoyed as just two weeks



25



26



30



31

ALBION A10 WD

The company Albion was founded in 1899 by Thomas Blackwood Murray and Norman Osborne Fulton and went into production in 1899 in the village of Biggar, producing their first motor car, a rustic-looking 'dog cart' made of varnished wood and powered by a flat-twin 8hp engine and solid tyres in 1900. As the years passed the company steadily expanded and soon became too big for the village. It was clear that in order to expand the company further they would have to find new premises and in 1903 the company moved to new premises in Scotstoun in Glasgow under the name of the Albion Motor Car Company Ltd.

Although the manufacture of motor cars was the main line of work for the first ten years of Albion's existence, in 1909 it was decided to concentrate on the production of commercial vehicles and the outbreak of World War One in 1914 saw the War Department (WD) issue an urgent order for just under 3,000 trucks for the army to be dispatched to France for the war effort. Albion went on to supply large quantities of 3-ton trucks powered by a 32hp engine, which utilised a chain drive system to the rear wheels.

These trucks served the army well during the war, but the end of the war in 1918 resulted in many being returned to Britain and eventually sold off for use by civilian operators. The financial situation following the Great War meant that money was short and it took around five years to sell all of the war surplus trucks. Of those that were sold, many were converted for use as charabancs and other civilian types, while Albion as a company moved into the production of civilian trucks and buses (single and double deckers), which were manufactured at the Scotstoun works right up until 1980.

later he took the Albion (which was now virtually complete having had the rear tilt fitted along with various other missing fixtures) to the Yorkshire Wartime Experience held near Leeds.

It was at the Wartime in the Vale show that I first made contact with Mark and Fred following a tip off from regular contributor and fellow WW1 truck owner, Tim Gosling, taking a number of photos of the truck for use in this article. We met up a second time at the Yorkshire Wartime Experience show and again more

photos were taken for this feature.

Now that the Albion is all but complete, Mark is spending his time finishing off all the small jobs in preparation for the 2014 show season, which is sure to be a busy time for the Albion as the country celebrates the 100th Anniversary of the start of WW1.

My thanks go to Fred Butler for the information and photos of the Albion's restoration featured in this article, and to Mark for showing me around his truck at Evesham.



PHOTOS...

Top right: photographed at the Yorkshire Wartime Experience in early July 2013, the Albion shows off its splendid classic lines in the sunshine.

Right: the same show provided re-enactors with a chance to ride in (and on) the Albion during the arena displays, providing visitors to the show with a great opportunity to photograph the Albion with a representative crew onboard.



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Cold War Leviathans

JIM KINNEAR BRINGS US A SHORT HISTORY OF THE MODERN RUSSIAN MOBILE INTERCONTINENTAL MISSILE LAUNCHER





"Some of the largest vehicles ever put into military use by the Soviet Union were the mobile ICBM TELs..."

ABOVE LEFT...

Since the deployment of the 'Pioner', a training variant of each successive ICBM TEL vehicle has been built. Seen here is the MAZ-79221 based chassis used for training 'Topol-M' crews.

MAIN PHOTO LEFT...

A 'Topol-M' mounted on its MAZ-79221 chassis photographed during the 9th May 2012 Red Square Victory Parade.



Some of the largest vehicles ever put into military operation were developed by the Soviet Union during the latter years of the Cold War; the descendants of which remain in service with the modern Russian Army. These highly specialised vehicles were developed for a specific strategic purpose, at immense expense in terms of engineering development and project cost. They were developed to transport and launch the Soviet Union's ultimate nuclear deterrent - intercontinental rockets armed with multiple nuclear warheads, later generations of which had a strike capability of hitting targets in the US or China from pre-prepared launch sites in the forests of the Soviet Union.

The first Soviet nuclear weapons were aircraft carried bombs, developed from the end of the 1940s, and airlifted by conventional bombers such as the Tupolev Tu-4, the Soviet equivalent of the United States B-29 'Superfortress'. For a few years land-based long-range tracked artillery was considered an option for nuclear delivery, with tracked self-propelled artillery behemoths such as the 2B1 and 2A3. Rocket technology was the future however, and in the late 1950s the Soviet Union introduced its first generation of land based, strategic rockets, the R-5M, R-7 and R-12, which were launched from unprotected static

BELLOW...

A rare service photograph of the RSD-10 'Pioner' MRBM mounted on its MAZ-547V chassis. (Photo courtesy - Aleksandr Koshavtsev)



RIGHT...

The RT-15 MRBM was based on the Obiekt-815 chassis, derived from the T-10 heavy tank. The launch vehicle was designated 15P696.



"The main technical obstacle in the development of fully mobile launch systems"

BELOW... The MAZ-547V was developed as the TEL vehicle for the Temp-2S, but later used for the RSD-10 'Pioner' (SS-20).



BELOW... The 140-tonne MAZ-7906 was built for the RS-22 'Tselina-2', but the modified chassis was later used for the 'Topol-M'.



launch pads. These systems were all developed on the basis of German rocket technology captured at the end of the Second World War, not least the German V-2 rocket, which was further developed in the Soviet Union as the 'FAU-2', which formed the basis of most Soviet post-war rocket development. These first generation strategic rockets were technically 'mobile' in that they could be moved from prepared launch pad to launch pad, but the process required tens of tracked and wheeled tow vehicles and trailers, cranes and other supporting vehicles for pad assembly, fuelling and launch preparation. In consequence, redeployment was slow and highly vulnerable to strategic retaliation in a hot-war scenario.

At the same time as these first generation land-based strategic rockets were being deployed, the Soviet Union

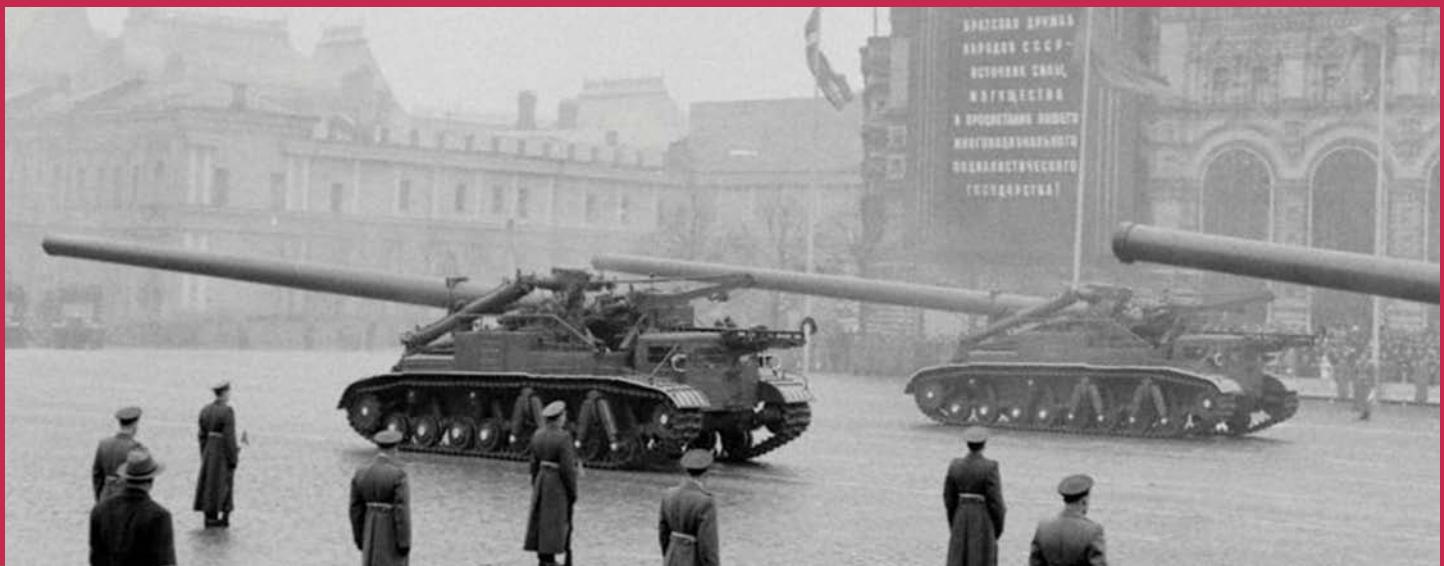
also began to deploy its first generation of mobile Operational-Tactical Rockets (OTRs), or battlefield rockets, intended for local deployment of conventional, chemical or nuclear warheads. The first such mobile rocket to be deployed was the R-11M - a descendant of the German V2 - which was deployed as the 8K11 rocket system, mounted on the tracked Obiekt-803 / 9P19 Transporter-Erector-Launcher (TEL) vehicle, and later designated 'Scud-A' by the West.

Meantime, from September 1959 the Soviet Union began tests on its first silo-launched strategic missile systems. These rockets, mounted in reinforced concrete silos with heavy overhead steel doors, offered an element of protection against first-strike or retaliation, but it had been clear from the outset that mobile launch systems would be required to better ensure

RIGHT...

At the time of its introduction, the RSD-10 'Pioner' MRBM mounted on its MAZ-547V chassis was the largest vehicle in service with the Soviets. (Photo courtesy - Aleksandr Koshavtsev)





ns was the fuel systems used by these rockets..."

survivability of strategic rocket systems in a nuclear war. Rail mounted systems were considered, and would later be introduced, but the Soviet Union instead concentrated on the development of land-based, vehicle mounted systems capable of rapid deployment over significant distances to complement its airborne and naval based nuclear deterents.

DEVELOPMENT

The main technical obstacle in the development of fully mobile launch systems was the fuel systems used by these rockets, as the liquid fuel used in early rocket systems was inherently unstable and could not be stored within the rocket for long periods of time, and the pre-launch fuelling of liquid propellant was a cumbersome and time-consuming process. At the

beginning of the 1950s the Soviet Union began work on the second generation of 'OS' (Otdelniy Start – independent launch) rockets, as a result of which, in 1967-68 the liquid fuelled R-36 and UR-100 rockets were taken into service, together with the solid fuel propulsion RT-2 ICBM, the Soviet equivalent to the US 'Minuteman-1'.

These rockets were significantly different from their predecessors, in that none of them required last minute fuelling before launch, and they were deployed pre-fuelled in ready-to-launch configuration - hence the Soviet OS designation. These rockets had rapid launch capability, albeit still from static silos, with fewer chances of error pre-launch and none of the logistics issues associated with the on-site fuelling of earlier rockets. The technological changes in rocket fuel

BELOW... A MAZ-547V prototype undergoing trials, loaded with concrete ballast to represent the rocket load weight.



BELOW... When parked together the differing cab arrangements for the MAZ-547V and MAZ-7916 are apparent.



TOP...

The first generation of land based nuclear warhead delivery vehicles was the massive 2B1 and 2A3 tracked artillery pieces, both based on a modified T-10 chassis. Seen here a 2B1 on Red Square.

LEFT...

The seven-axle MAZ/MZKT-7912 was the first TEL vehicle used with the 'Topol' (SS-25) ICBM. It retained the curiously shaped operator's cab of earlier vehicles. (Photo courtesy - Aleksandr Koshavtsev)

RIGHT...

A 'Topol' (SS-25) ICBM mounted on the earlier MAZ/MZKT-7912 chassis with its asymmetrical cab arrangement. (Photo courtesy - Aleksandr Koshavtsev)



BELLOW...

The largest of all TEL vehicles developed to trials stage was the MAZ-7907, a 12-axled behemoth reminiscent of a locomotive. Built as an alternative TEL vehicle for the RS-22 'Tselina-2', the vehicle also did not enter production.

BOTTOM...

A 'Topol-M' fords a river during an exercise. (Photo courtesy - Aleksandr Koshavtsev)

deployed with solid and partly solid fuel Soviet rockets from the RT-2 onward now gave the Soviet Union the capability to develop fully mobile rocket systems - including ICBMs - capable of operating independently of convoys of associated launch preparation vehicles. Work on developing mobile variants of some of these next-generation rockets, mounted on tracked, wheeled and rail mounted launcher systems progressed in parallel with these rocket fuel developments, resulting in the first fully road mobile self-propelled strategic rocket launch vehicles, developed in 1965-67 for the RT-15 MRBM and the RT-20 ICBM, with the tracked TEL vehicles for both these rocket systems developed by KB-3 at the Leningrad Kirov Zavod (LKZ) the famous heavy tank plant which had developed the KV heavy tank and after

the war had built several types of Soviet heavy tank. These systems made their public debut on Moscow's Red Square in 1965 while they were still in the development stage, and with their public unveiling a new era of Soviet mobile rocket technology - and the threat that posed to the West at the time - had dawned.

RT-15

The two solid fuel stage medium range RT-15 (8K96) MRBM was developed at OKB-1 in collaboration with the TsKB-7 design bureau (KB Arsenal) under the control of chief designer P.A. Turin, using the 2nd and 3rd stages of the RT-2 (8K97) ICBM. The RT-15 could deliver a 1-1.5Mt nuclear warhead to a range of 400-4500km. After development and 19 test launches conducted between 1965 and 1970, the system was recommended for

limited series production for field trials service. The RT-2, from which the RT-15 was derived, was a more powerful ICBM alternative, but its launch weight of around 50-tonnes was too great for any tracked TEL chassis available at the time. For mobility the 1.4m diameter, 12.6m long RT-15 rocket, with a more manageable launch weight of 20 tonnes, was mounted on the Obiekt-815 tracked chassis developed by and built at the LKZ plant on a chassis derived from that used on the T-10 heavy tank. The overall weight of the 15P696 TEL vehicle with fuelled rocket was 55-tonnes.

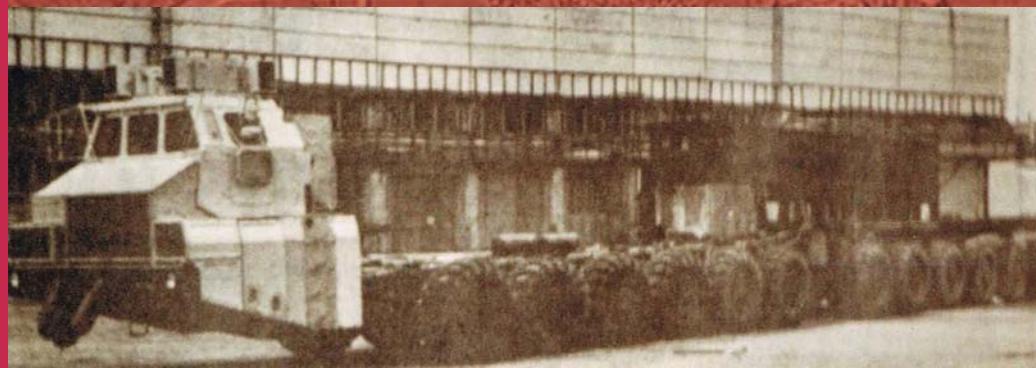
RT-20

The RT-20 (8K99) ICBM was developed by the SKB-586 design bureau (KB Yuzhnie) under the control of chief designer M.K. Yankel. It was initially developed as a three-stage solid fuel rocket which could deliver a 1Mt nuclear warhead to a range of 6000km; however the rocket launch weight was greater than could be reliably transported by any known TEL vehicle at the time, and subsequently a new, two-stage variant was developed for land mobile deployment, with a combined fuel system, consisting of a solid fuel first stage and single chamber liquid fuel second stage. The rocket remained of significant proportions, with a diameter of 1.8m, a length of 18m and retaining an impressive 30-tonne launch weight. During development trials conducted 1965-68, eight launches were undertaken, after which further work on the system was curtailed.

To transport the RT-20 rocket, the KB-3 design bureau at the LKZ plant in Leningrad developed and built the Obiekt-820/821 TEL vehicle, the 15P699 TEL vehicle having an overall vehicle weight of 65 tonnes with a fuelled rocket installed.

TEMP-2S

Neither the RT-15, nor the RT-20 entered operational service with the Soviet Strategic Rocket Forces (RVSN), however experience gained in the development of these systems was used in the development of a new mobile rocket for Soviet land forces use, the 'Temp-2S' (Temp-S2M), which was developed at what is today designated the MIT institute, which had already developed a solid fuel OTR field rocket, the 'Temp' and a land mobile strategic rocket system, the 'Temp-S' (NATO: SS-12 Scaleboard), mounted on a wheeled TEL vehicle based on the chassis of the 8x8 MAZ-543, and firing a two stage solid fuel rocket with a range of 900km, which





was taken into service in 1968.

Work on the 'Temp-2S' began in collaboration with VNII-100 (VNII Transmash), which was charged with developing several variants of TEL vehicle capable of transporting and launching a 37-tonne rocket.

Several alternative TEL vehicle variants were developed for the 'Temp-2S'; three design variants all mounted on a single tracked chassis, similar to the Obiekt-815 and Obiekt-820 developed at LKZ for the RT-15 & RT-20 rockets; a unique TEL vehicle employing a tandem tracked chassis; and a tracked tractor with a wheeled semi-trailer derived from that normally used with the MAZ-537. Two base variants of the new TEL vehicle were chosen for trials purposes in 1968. Alternative tracked options based on the chassis of the T-10 heavy tank and components of the then next-generation T-80 MBT, both developed at the KB-3 design bureau within the LKZ plant in Leningrad; and a new six-axle wheeled chassis developed by the MAZ design bureau in Minsk, based on a lengthened version of the MAZ-543 series. As a result of extensive trial launches conducted at the Plestesk polygon over the period 1972-75, the 'Temp-2S' was ultimately taken into service with the RVSN, mounted on its new MAZ-547A six-axle TEL vehicle. The 'Temp-2S' was not however deployed, due to the ongoing SALT (Strategic Arms Limitation Talks) negotiations between the USA and USSR from the early 1970s, which ultimately resulted in the INF (Intermediate-Range Nuclear Forces) Treaty of 1987.

RSD-10 PIONER (SS-20)

With the 'Temp-2S' having been banned from service by bilateral agreements, Soviet rocket engineers at the MIT institute in Moscow began work on developing a new variant that would circumvent the treaty obligations, resulting in the RSD-10 'Pioneer' (NATO: SS-20) rocket system developed using the first two stages of the 'Temp-2S'.

The six-axle MAZ-547A based 15P645 TEL vehicle used for the 'Pioneer' system was essentially the vehicle originally developed for the cancelled 'Temp-2S' ICBM. The 'Pioneer' mounted on its six-axle TEL vehicle was accepted for service on 11th March 1976 as the first fully independent mobile ICBM to enter service with the RVSN.

According to US Department of Defence data, some 351 'Pioneer' TEL vehicles were deployed in May 1983, of which 108 were located east of the Urals mountains. The 'Pioneer' was originally mounted on the chassis of the MAZ-547A, then the MAZ-547V and latterly the MAZ-7916, which featured a symmetrical twin cab arrangement.

According to NATO records, there were three variants of the RSD-10 'Pioneer', with a single 500km range warhead, three individual targetable warheads and a single smaller warhead with an extended range of 7800km.

Ultimately, although the RSD-10 'Pioneer' was widely deployed, the rocket was subject to the 1987 US-USSR INF Treaty on the Elimination of Medium & Short range ('intermediate') nuclear weapons, and was subsequently eliminated from service. The massive MAZ-547 based TEL vehicles were part of a strategic deployment that included the building of 408 static concrete launch pads with weather protection built for alternative deployment of the

ABOVE...

Despite being very much a current weapon, some 'Topol' systems are beginning to appear in museum collections, as seen here.

BETWEEN...

A 'Topol' ICBM on its later MAZ/MZKT-7917 TEL vehicle emerges from its storage shelter. Though 'mobile' the TEL vehicles were designed to deploy from fixed storage sheds on prepared sites.



BOTTOM RIGHT...

For mounting the 'Topol-M', an even larger vehicle than that used for the 'Topol' was required; resulting in the development of the 16x16 MAZ/MZKT-79221, seen here during development trials.

system, and 126 MAZ-547 based TZM (transporter-reloader vehicles) for deploying additional rockets.

Destruction of the RSD-10, in conformance with the INF Treaty began in August 1988. The first 72 were destroyed in the Chita Oblast (by launching them without warheads) and later at the Kapustin Yar polygon, by the slightly less impressive method of destroying three rockets simultaneously on a specially prepared destruction pad. The TEL vehicles were then disassembled. The last RSD-10 rocket was destroyed on 12th May

1991. A few rockets and SPU vehicles were retained for display purposes in the USSR, with an RSD-10 'Pioneer' rocket even being displayed at the Smithsonian Institute in the USA.

TOPOL (SS-25)

In parallel with work on modernizing the 'Pioneer' (or rather modifying it for other non-treaty bound purposes), the MIT institute developed the RS-12M 'Topol' (NATO: SS-25) three stage solid fuel ICBM; which was taken into service in 1985. The seven axle MAZ-7912 (later MAZ-7917) TEL vehicle for the 'Topol' was assembled at the Barrikadny plant in Volgograd on the basis of a specialised seven-axle chassis developed and built by MAZ in Minsk on the basis of the MAZ-543 series.

In accordance with the US-USSR START agreements, the Soviet Union on 1st September 1993 possessed a total of 208 TELs for the 'Topol' ICBM, and around 340 in 1993. The 'Topol' was organized into rocket regiments with approximately 9 TELs each, with 3-5 regiments configured into a single rocket division. As with the 'Pioneer' ICBM, the 'Topol' though mobile was designed to be stored in metal and concrete hangars and deployed to concrete and steel reinforced bunkers for launch. The 'Topol' missile systems were controlled from a MAZ-543M based mobile command vehicle.

was however the base version RS-22, the 'Tselina-2', a land based mobile ICBM. Though the base road-mobile version was not taken into service, two specialised and absolutely massive 140-tonne load capacity TEL vehicles were built for it, the MAZ-7906 and later the MAZ-7907 with engines developing 1200hp and 1500hp respectively. These vehicles were always tested at night, so secret was their development, but ultimately they were not to be taken into service.

With the collapse of the USSR in 1991, the Russian Federation and the Ukraine, which had jointly developed the Soviet Union's strategic rocket arsenal became separate countries. The Yuzhne design bureau was now located in independent Ukraine and was no longer involved in future Russian strategic rocket development. In the Russian Federation, only two KBs remained involved in strategic rocket development; the KB 'Salyut', working on development of the UR-100, UR-100K and UR-100N, and KB MIT, working on the 'Temp-2S', 'Pioneer' and 'Topol', with the only new mobile development being the 'Topol-M'.

RS-12M2 TOPOL-M (SS-27)

The RS-12M2 'Topol-M' (NATO: SS-27) was developed from the 1980s at MIT under the direction of B. Lagutin as a modernization of the earlier 'Topol'. Silo and land mobile launch mechanisms were developed for the 'Topol-M', the latter by means of a wheeled TEL vehicle. In December 1994, the first test launch of the new 'Topol-M' MBR (ICBM) was undertaken from a silo at the Plesetsk polygon.

The RS-12M2 entered service in 1996, as the land mobile 'Topol-M' and the silo-launched 'Topol-M2', intended to gradually replace the obsolescent UR-100N, UTTKh and R-36M. At the time of writing, the 'Topol-M' ICBM and its 16x16 TEL vehicle is the largest all-terrain military vehicle in the World, and by far the most deadly.

RS-22 (SS-24)

At the beginning of the 1970s the 'Yuzhnoe' design bureau continued work on developing a universal rocket for deployment in silo, land mobile and rail installations. The result was the RS-22 ICBM, which was the direct Soviet equivalent to the US MX. The RS-22A (NATO: SS-24) was a railroad-launched version, accepted into service in 1989. The RS-22B was silo mounted 'OS' stand-alone type, accepted into service in 1990. The most interesting version for the purposes of this article

In Preservation

1. The size of the MAZ-547 series is apparent when viewed alongside other vehicles as here, mounting a wartime GAZ-AA and ZiS-5 truck outside the Ryazan Military Transport Museum.

2 & 3. After their treaty-obligation decommissioning, several RSD-10 'Pioneer' missile systems were delivered to museums in the Former Soviet Union.



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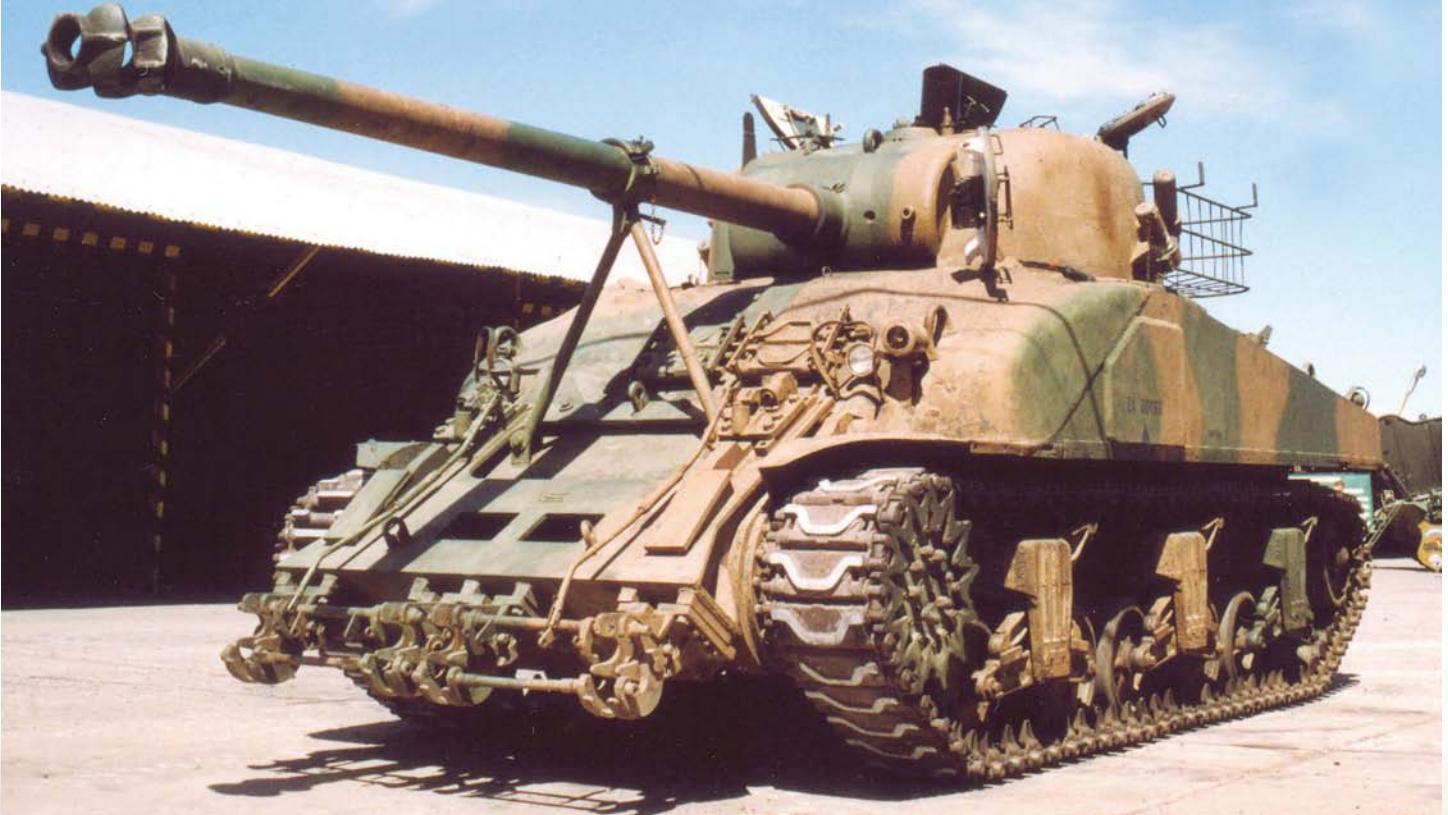
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Argentine Shermans

JUAN CARLOS CICALESI AND HERNÁN CASCIANI LOOKS AT THE M4 SHERMAN TANK IN ARGENTINE SERVICE

TOP...

Sherman of the Argentine Army equipped with fittings to accept the Urdan minesweeper.

BELOW...

Sherman Firefly tanks during a parade in 1967. The tanks retain their add-on armour plates on the hull and turret fitted during World War 2.

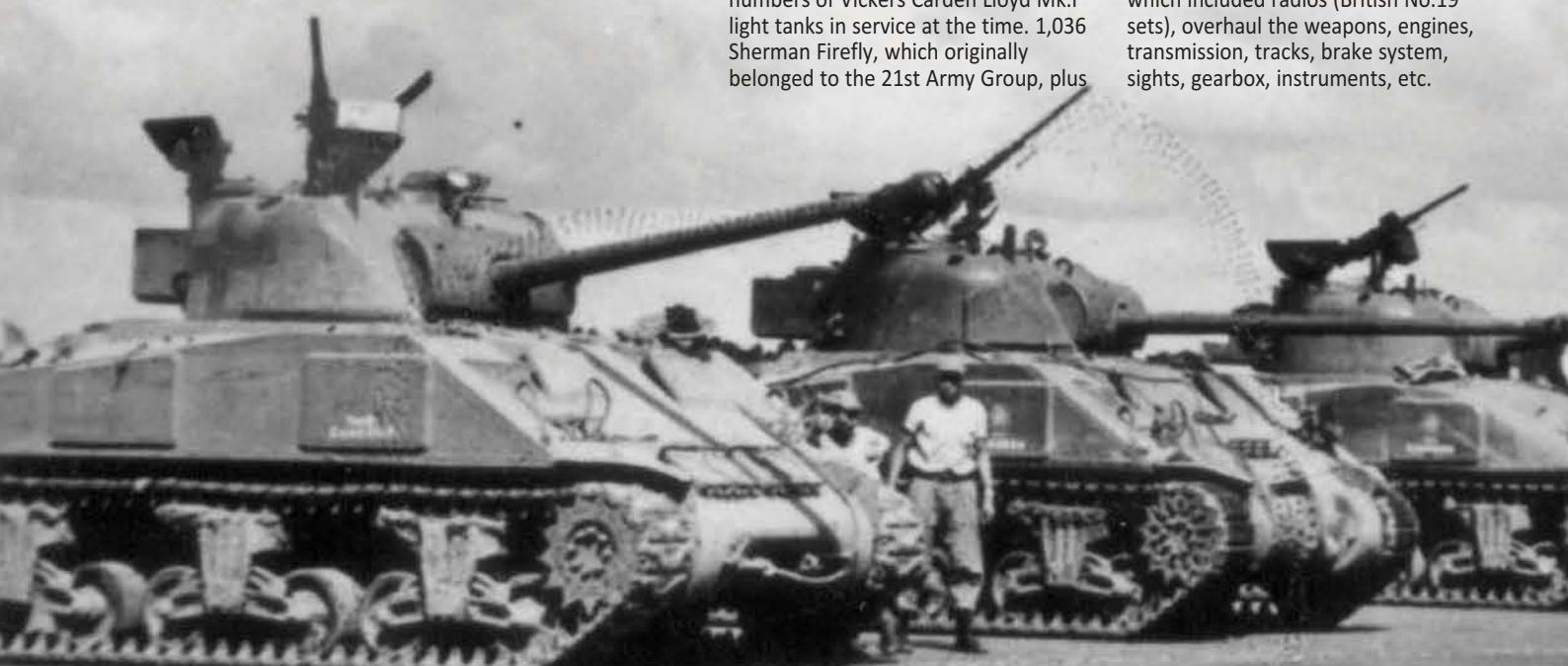
With the end of WW2 in Europe there were large stocks of surplus vehicles, originally provided by the US to her allies under the 'lend lease' programme, which left vast quantities of surplus vehicles to be sold off at low prices. Many countries took advantage of this and purchased large quantities of equipment, and Argentina was amongst the countries to purchase surplus vehicles.

At the time Argentina was seeking a more modern tank for its Army, who had just 12 locally-built DL-43 Nahuel (similar to the M4 Sherman) and small numbers of Vickers Carden Lloyd Mk.I light tanks in service at the time. 1,036 Sherman Firefly, which originally belonged to the 21st Army Group, plus

tanks from Canada, England and Poland were available to buy. Argentina hired Indanex, a Belgian company, to purchase amongst other things, a number of tanks for the army and following negotiations, 538 armoured vehicles, including 30 Crusader Mk III British tanks, 98 light tracked carrier T-16E-3 and 360 Sherman tanks of different models were despatched to Argentina.

There were several Firefly models, including the M4 and M4 Hybrid, the Mk IC, the C suffix, referring to the OQF cannon (Ordnance Quick Firing), the MkIV/VII armed with the 17-pounder gun, and three M-31 recovery tanks based on the M3 Lee.

The tanks were received between 1947 and 1948, after which the Argentine State Arsenals worked full time to replace the used components, which included radios (British No.19 sets), overhaul the weapons, engines, transmission, tracks, brake system, sights, gearbox, instruments, etc.



Re-engined Shermans photographed during a firing exercise in the Santa Rosa area in Villaguay Entre Ríos Province in 1986.



BELOW LEFT...

Argentine Sherman Firefly photographed in September 1962 during the fighting at the Echeverri crossroad.

BELOW RIGHT...

Sherman Firefly seen during a parade in 1967, and before the tanks underwent the re-engine works. The tank belongs to the Escuadrón de Exploración de Caballería Blindado 10.



Sherman Firefly at Bahía Blanca with Navy Marines, in September 1955.

Many of the tanks that arrived from Belgium were kept in reserve at the Villa Martelli workshop where, in 1958/59, they disassembled the tanks to recover parts for spares for those already in service. The tanks were stored outside, and retained the original paint schemes, as used in Europe. Most of the refurbished tanks were sent to the First Armoured Brigade in South America, which represented a huge leap forward for the Argentine armed forces. Almost all Sherman Fireflies were sent to the heavy sections, of the Destacamentos de Exploracion Blindada, Regimientos de Infanteria Motorizada and the Regimiento de Tiradores Blindados.

An added complication when trying to trace of the units and vehicles in service with the Argentine military, is an old Argentine Army custom of constantly changing the designations of the units, as well as the organization and location, and even today makes it difficult to trace the exact location and deployment of Argentine personnel.

The classic Army organization in the 50's, was the 1º División de Caballería Blindada, which included the RC 8, RC 10, the GA1 (1st Armoured Artillery Group), one Destacamento de Exploracion Blindada, one Escuadrón de Zapadores/Pontoneros Blindado and Esc. de Comunicaciones Blindado.





PHOTOS...

Top left: Sherman Firefly photographed at Bahia Blanca, Buenos Aires Province during the overthrow of President Peron in 1955.

Above: Sherman tanks spotted on the move during in the last Army uprising in 1988. The plates of armour added to the driver and front gunner positions are clear to see in this view.



Tanks of the RCT 8 take a break at the side of the road during their journey to Buenos Aires.

PHOTOS...

Top left: Sherman Firefly at Bahia Blanca, Buenos Aires Province with the Navy Marines, during the overthrow pf President Peron in September, 1955.

Below: This Sherman Firefly was used for spares at Villa Martelli in 1960.



Late model Sherman seen here on a tank transporter. This tank belongs to the Regimiento de Caballería de Tanques 1.



In 1954, the Argentine Minister of War, Jose Humberto Sosa Molina, went to the United States, where he purchased more equipment, which included the 90mm anti-aircraft cannon, complete with the Allis Chalmers M4 tractor, six M7 equipped with the 105mm M2-A2 howitzer and ten Sherman tanks of various models arrived with all this equipment.

Up until 1962, all the armoured vehicles belonged to the armoured units and mechanized infantry, but after 1962 the Caballería took charge of the tanks, forming the Tiradores Blindados and Exploracion Blindada, according to an official bulletin №302 dated the Sept 3rd, 1962and for a while armoured vehicles existed side by side with infantry units and horse equipped cavalry!

One of the factors that caused most of the early troubles with the Shermans was the use of the Chrysler A-57 Multibank engine on the M4A4 variant. The engine, known as the Chrysler Multibank, basically comprised of five petrol car engines, each with six pistons, and was found to be unreliable due to its complex systems and location of the carburettors, with failures common, and repairs difficult to carry out. This resulted in the low availability of vehicles, until 1959, when the engines

Re-engined Shermans photographed during an exercise in the Chajarí vicinity in the Entre Ríos Province.





were changed for the V8 Ford GAA 8, of which the Army purchased 317 units, and increased the availability significantly. With the new engines, the tanks could achieve speeds of 50 km/h in extreme conditions, and combined with the 76.2mm cannon, made it a powerful tank. By that time, the DGFM (Direccion General de Fabricaciones Militares), were producing the ammunition for that cannon, consisting in APCBC, SVDS and HE.

ARMOURED UNITS

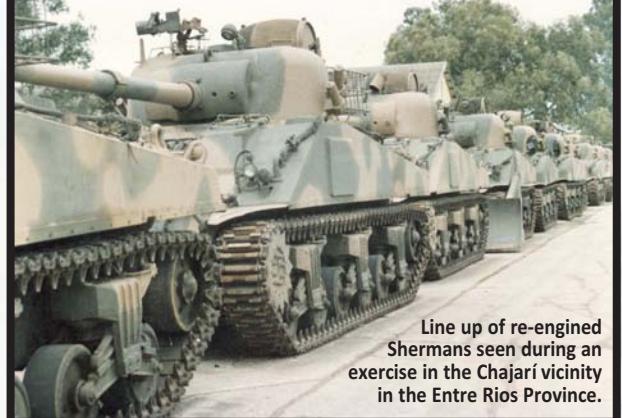
The RCTan 10 received its first tanks on 29th April, 1948, and was equipped with the Sherman M4 and M5 armoured vehicles. In 1951 they were redesignated Agrupacion Blindada 1, comprising of one M4 Battalion, and in 1953 they changed once again and became the Agrupacion de Tropas Blindadas 1. Another change in 1958 saw the unit renamed as Agrupacion Blindada A, with its Base at Campo de Mayo, where it was organized as the following: Batallón de Tiradores blindados and Batallón de Tanques, two Compañías (Ca) de tanques and two Ca de Tir Bl (1^a Ca tan, 2^a Ca Tan y 1^a and 2^a CA Tir Bl.) CA Comando de la Agrupación, Ca de mantenimiento and Ca de abastecimiento Blindado. They were located in Azul, Buenos Aires

Province, until 1961, when it was transformed into the Regimiento de Caballeria de Tiradores Blindados 10, with three Escuadrones de Tiradores Blindados and one of tanks.

In 1962, Regimiento 2 received the same armoured vehicles as the RCTan 10, and Regimiento 2 were also located at Azul, Buenos Aires Province, but in 1979 the Shermans were replaced by the SK-105 Kurassier. The arrival of the first Sherman tanks in 1947 saw the creation of the Regimiento de Caballeria de Tanques 8, in the Corrientes Province, which later moved to Magdalena, in the Buenos Aires Province, and where it remains today, being the main tanks regiment. The Regimiento de Caballeria de Tanques 1, located in Tandil in the Buenos Aires province, was moved to Villaguay, in the Entre Ríos province.

One of the biggest units, was the Escuela de Tropas Mecanizadas, created on October 15th, 1943 and based in the Corrientes Province, although in September 1955, it moved to Villa Martelli, in the Buenos Aires Province.

The tank maintenance unit changed its name to Agrupacion Talleres Fabrica General Paz, as the result of the union of the Taller de Mantenimiento № 3 and the Equipo Movil de Reparacion de Tanques y Semiorugas (Mobile half-track and tanks repair unit).



Line up of re-engined Shermans seen during an exercise in the Chajarí vicinity in the Entre Ríos Province.

TOP LEFT...

Rare early colour photo of a composite armour Sherman (cast front/welded rear to hull), on parade in 1950.

TOP RIGHT...

A Sherman is lowered onto a transport ship to Patagonia during the Chilean border conflict.

BELOW RIGHT...

Rear view of re-engined Shermans. Note the 'beer kegs' on the turrets and the later steel cleat tracks.

BELOW LEFT...

An impressive show of strength in 1950 during a military parade featuring the newly acquired Shermans with 75mm cannon.





TOP LEFT...

A late model re-engined Sherman seen here equipped with a mechanical shovel, modified in Argentina.

TOP RIGHT...

Since the introduction of the new TAM tanks, the Shermans of the RCTan8 have been made redundant and sit slowly rusting away.

ABOVE LEFT...

Photographed during the fighting at Echeverri crossroad in September 1962, a Sherman Firefly undergoes some minor repairs for damage sustained to the engine.

RIGHT...

A small number of Shermans of the RCTan8 have been saved and preserved as gate guardians since being made redundant.



A NEW SHERMAN

From the original tanks, only there was 140 vehicles in service, in varying conditions and with the threat of armed conflict with Chile on the horizon, it was decided to remanufacture 120 Sherman Firefly. The work on the M4A3/4 M4A consisted of the complete dismantling of the tanks, which were then cleaned, repaired and all components, both internal and external, refurbished, repainted. At the same time a new French CN-105/57 105mm gun was installed, which was very similar to that used in the AMX-13. To install the new armament it was necessary to modify the turret, and this work was carried out at the Fabrica Militar de Rio Tercero, located in the Cordoba Province. The Shermans were also fitted with a new and more powerful diesel engine, the French Poyaud 520/V8S2. This engine was a 13,960CC, water cooled V8, developing 500hp at 2,500rpm. Radio equipment consisted of an Argentine made VRC-3600, with intercom and external phone. The original optical instruments were retained, only the aiming telemetry unit was replaced to suit the new gun.

By 1978 December, the Argentine Army Armoured units were composed of the I Brigada de Caballeria Blindada, including the RCTan8 equipped with 60 AMX-13 and the RCTir BI 2 and 10 equipped with two Escuadrones de Tiradores Blindados and one composed of 12 Sherman repowered tanks.

The II Brigada de Caballeria Blindada, based at Parana, Entre Rios Province was composed of the RCTan1 located at Villaguay, and the

Regimientos de Caballeria de Tiradores Blindados 6 and 7, all located in the same Province. In 1981 the RCTan 2, received the new SK-105 so the remaining Shermans were passed on to the II Brigada de Caballeria Blindada.

The period between 1981 and 1991, when the army began to receive more of the locally built TAM tanks, which were built in the local factory TAMSE (Tanque Argentino Mediano Sociedad del Estado), coincided with the years of great transferences of tanks between units. I Brigada de Caballeria Blindada received the new TAM tanks but didn't use the re-engined Shermans, while II Brigada de Caballeria Blindada, had some TAM tanks and some re-engined Shermans, which remained in service until 1991, after which the TAM equipped all the regiments, and the Shermans were finally retired from service, although the official retirement of the Sherman didn't take place until 1998.

After some years a few deficiencies were found in the new TAM, which had been fitted with the URDAN mine sweeping device, and as a consequence a small number of Shermans were taken back into service (in practice they never had stopped working), for use in the mine-sweeping training and even today the Sherman is still used to train new troops for demining work, without any risk to the TAM family vehicles, which surely must make the Argentine Shermans one of the longest serving World War Two tanks in the world?

A special thanks to Eduardo Gonzalez Mossini



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DVD 2013...

All Good Things...

DEFENCE VEHICLES DYNAMICS 2013 CLEARLY DEMONSTRATED THE UK DEFENCE INDUSTRY HAS BATTENED DOWN THE HATCHES AND IS BRACING ITSELF FOR FAR LEANER TIMES . . .



MAIN PHOTO & INSET...

DVD 2013 was the first public appearance of BAE Systems' Terrier Combat Engineer Vehicle (CEV), the first production example of which was handed over to the MoD in January 2012. By DVD, around 30 of the 65 CEVs ordered had been produced at BAE Systems' former Vickers tank-building facility in Newcastle-upon-Tyne, with production scheduled to conclude in early-2014. When production concludes, this facility will close.



LEFT...

Front view of a TES Challenger 2 complete with all the whistles and bells in terms of armour protection packages!



Despite positive promotion, this year's DVD show was noticeably leaner than previous events. With the drawdown from Afghanistan in full swing, defence spending cuts ongoing, and no sizeable vehicle-related requirements on the horizon, most commentators agree the biggest, best and most well-attended DVDs have sadly been and gone. Having just read what you could perceive to be a negative opening sentence, you'd be forgiven for thinking this year's show wouldn't hold much of interest for MMI's readers; you'd be wrong...

In addition to industry, as a bonus at this year's show (and possibly partly because otherwise there would have been quite a lot of open space compared to previous shows) the Army displayed examples of most types currently in service. Included in this display were Theatre Entry Standard (TES) configured examples of Challenger 2, Warrior, CVRT, Mastiff, Ridgeback, Foxhound and Warthog.

From the industry side, a highlight of the show for many would have been the first public appearance of BAE Systems' Terrier, the first production example of which was handed over to the MoD in January 2012. The Terrier Combat Engineer Vehicle (CEV) has been developed to replace the now-retired FV180 Combat Engineer Tractor (CET). BAE Systems (RO Defence) was

awarded the £386 million CEV contract in 2002, this calling for one prototype, four demonstrators and 60 production vehicles, plus integrated logistics support and a training package.

The initial projected in-service date for Terrier was 2008, however, there was significant programme slippage, reasons for this including reliability issues, changes in the requirement, plus the desire for enhanced protection based on operational experiences in Afghanistan and Iraq. By DVD, around 30 CEVs had been produced at BAE Systems' former Vickers tank-building facility in Newcastle-upon-Tyne, with production scheduled to conclude in early-2014. When production is complete, this facility will close and any future Terrier production would likely occur at BAE's former GKN/Alvis Telford facility.

In service Terrier will carry out numerous roles including mobility support (obstacle and route clearance), counter-mobility (digging of anti-tank ditches and other obstacles), and survivability (digging of trenches and



ABOVE...

Possibly because otherwise there would have been quite a lot of open space compared to previous shows, at DVD 2013 the Army displayed examples of most types currently in service. Included in this display were Theatre Entry Standard (TES) configured examples of Challenger 2 (top left), Warrior (above), CVRT (above left), Mastiff, Ridgeback (top right), Foxhound and Warthog.

BR90 ABLE TES...



PHOTOS...

Two photos taken one on each day of the show of a BAE Systems' BR90 ABLE variant upgraded to TES clearly show DVD's now legendary variable weather...



MLRS RRV TES...



PHOTOS...

Only four Lockheed Martin M270 Multiple Launch Rocket System were converted into a Repair and Recovery Vehicle (RRV) variant under a £2.4 million contract award in 2004.



RIGHT...

The UK MoD's tank transporter requirement was launched as a Private Finance Initiative (PFI), the money and not capability driven award ultimately going to FASTTRAX for a package that (out of good fortune for the Army...) included the extremely capable Oshkosh 1070F HET.



"Modifications included an armoure

armoured fighting vehicle slots). Terrier is fitted with a front mounted, four-in-one bucket that can be used to doze, dig, load and grip assorted items. This bucket has a capacity of 2.8 m³, a lifting capability of five-tonnes, and if required can be replaced by forks, ripper attachment, or a Pearson Engineering surface mine plough. The side-mounted excavator arm has a 2.5-tonne lift capacity and can be fitted with a variety of optional equipment that includes a bucket, earth auger and lifting hook. As part of a weight/capability trade-off, to ensure Terrier can be transported by A400M aircraft, no winch is fitted.

Load rails are fitted to the rear decks to allow for up to five tonnes of stores to be carried, and Terrier CEV can tow either a Python minefield breaching trailer, or an 18-tonne Armoured Vehicle Royal Engineer (AVRE) trailer, thus transporting either fascines or trackway. However, Terrier's best 'trick' is that for especially hazardous operations it can be remotely controlled if required...

Ultimately there were two bidders for the Terrier contract, Vickers Defence Systems (VDS) and RO Defence, these each awarded 21-month competitive £6 million project definition (PD) contracts late in 1999. Both are now part of BAE Systems, BAE acquiring RO Defence as part of GEC Marconi in 1999, with VDS (as part of Alvis Vickers) following in 2004; Alvis having acquired VDS in 2002.

BRIDGE THAT GAP

Also displayed by BAE Systems was a Theatre Entry Standard (TES) example of Unipower's M-Series BR90 ABLE (Automatic Bridge Laying Equipment). Following extensive trials of the trucks and the BR90 bridging system they were designed to support, the first of 129 M-Series entered British Army

service in 1997. As an Urgent Operational Requirement (UOR) for Afghanistan, BAE Systems uparmoured an initial five M-Series at its now-closed bridging facility in Wolverhampton during early-2010.

A further 11 vehicles were subsequently upgraded to the higher Theatre Entry Standard (TES) standard under an £8 million UOR contract awarded during 2011.

The TES package includes upgraded ZF steering, plus new 12.5-tonne-rated Kessler steer-drive axles that were required to accommodate an upgrade-driven GVW weight increase for the heavier ABLE variant from 39- to 45-tonnes. Modifications included an armoured cab with bar armour, runflat inserts for the tyres, an ECM package, and a Kongsberg Light RWS.

A life-extension from 2016 to around 2040 is currently under consideration for the BR90 system, although if the M-Series trucks can be retained for that amount of time has yet to be decided. However, no matter what decision is ultimately made, it is pretty much a certainty the BR90 M-Series will be the last genuine British truck to serve with the British Army...

BAE Systems became the ultimate parent of the BR90 system through acquisition. Vickers Defence Systems (VDS) acquired bridge-designer NEI Thompson from Rolls Royce in 1995. Rolls Royce then acquired Vickers in 1999. As previously noted, VDS was purchased by Alvis in 2002 to form Alvis Vickers, and in 2004 BAE Systems acquired Alvis Vickers. Unipower had been acquired by Alvis Vehicles in 1994, and with an expectation that Unipower (with its Scammell legacy) were a dead cert for the Army's tank transporter contract. However, the requirement was launched as a money and not capability driven Private Finance Initiative (PFI), and on the basis of this the award went to FASTTRAX for a package including an Oshkosh tractor and King semi-trailer.

The tank transporter decision effectively killed Alvis' (primarily an armoured vehicle manufacturer) interest in Unipower, and by 2000 all M-Series marketing had ceased and Alvis was looking to divest Unipower.

The only other known sales of M-Series trucks have been nine (6x6) tank transporter tractors to Oman in 1995, and a single (possibly two, one in kit form) six-axle prototype to the Indian Army during 1996/97, this understood to have been under consideration for use in the TEL (transporter/erector/launcher) role, most likely for Brahmos which was subsequently mounted on a TATRA chassis. Two prototype Beach Landing

d cab with bar armour..."

Transporters were supplied to the French Army in 1999, and it was disclosed during 2008 that French company MPI had since produced under licence 10 (possibly 12) additional Beach Landing Transporters.

FUEL FOR THOUGHT

In addition to its tank transporter tractors, Oshkosh has also supplied the Army (and RAF) with its primary fuel asset, Wheeled Tanker. The company delivered 357 Wheeled Tankers (most during 2005-2006), but due to ongoing force restructuring between 70-100 examples may soon be surplus to requirement. To meet the MoD's ongoing Light Equipment Transporter (LET) requirement, Oshkosh has proposed the conversion of surplus Wheeled Tanker tractor units, and displayed a prototype example at DVD.

Modifications are based around the rear two 9-tonne axles and their TAK-4 independent coil spring suspension. An 11.8-tonne set up with variable ride height and nitrogen-over-hydraulic suspension is now fitted, this allowing for a maximum kingpin load increase from 10- to 15-tonnes, and a permissible GCW increase from 44-tonnes (design rating) to 68-tonnes.

At the show it was disclosed that the modified tractor unit was scheduled to undertake a short series of 'confidence trials' at the Combat Service Support Trials and Development Unit at Long Valley. The project itself remains unfunded, although it is understood the intent is (depending on funding and trials) for this capability to be available from 2015-2016.

In the interim, 78 of 99 Broshuis LET trailers have been converted to MLET (M - Modified) standard by Broshuis. Work centred on increasing swan neck height by 170 mm, this giving compatibility with Wheeled Tanker

tractors. Service entry for the MLET/Wheeled Tanker tractor combinations is pending with vehicle allocation currently underway. For operational use, six Wheeled Tanker tractors were converted (under a UOR) to work with the standard ILET (I - interim) Broshuis trailer. Modifications centred around lowering the fifth wheel height of the tractor, and the fitting of 1400R 20 tyres to replace the standard 1600R 20 tyres.

In both cases Wheeled Tanker's axle and fifth wheel load rating-driven 44-tonne GCW is retained, allowing a 19-tonne payload for the trailer.

The original LET tractor was a commercially based Seddon Atkinson (6x4) unit, supplied from 1992 and finally declared obsolete during 2012. Seddon Atkinson eventually became part of IVECO and the last Seddon Atkinson-badged trucks were built in Spain, Seddon-Atkinson's Oldham plant closing in 2004. The original LET trailer, supplied by Trailmaster, was withdrawn from service early for reasons of maintainability, the ILET contract awarded to Broshuis in 2004. Trailmaster ceased trading shortly after the LET contract award. Currently the majority of non-operational LET lifts are performed by civilian contractors.

MAN'S WORLD

The last of the MoD's 7,285 Support Vehicles (an HX60 (4x4) 6-tonne cargo) was displayed at DVD. Delivered by MAN Truck and Bus UK Ltd, Support Vehicle has already replaced the Bedford TM 8- and 14-tonne fleets, and by late-2014 will have replaced all remaining Bedford 4-tonners, plus the handful of Foden wreckers that remain. From the legacy fleet, only a couple of hundred Leyland DAF 4-tonners may be retained for specialist mortar and gun tractor roles until around 2020.



Total Support Vehicle (and derivatives) orders totalled 7,484 (inc. 69 trailers), this including a contract option and additional orders that included 181 HX77 (8x8) Enhanced Palletised Load System (EPLS). It is possible that additional EPLS trucks will be ordered, the Army's aging and well-used Leyland and Foden DROPS (Demountable Rack Off-loading and Pick-up System) fleets now in need of replacement and unlikely to remain viable beyond 2020.

MAN also displayed a prototype light recovery vehicle, this based on an HX60 and clearly targeted at a potential UK MoD requirement for a small number of vehicles of this type to replace the remaining Bedford MJ-based light recovery vehicles used by deployable forces. The prototype is fitted with a recovery hamper provided by EKA, the main winch being the Support Vehicle SX45 wrecker self-recovery winch. To further increase overall capabilities, the vehicle is also fitted with a Hiab crane, this is common with Support Vehicle HX60 Cargo With Crane vehicles. The vehicle will be capable, depending on weight distribution and balance, of recovering casualties weighing up to 18-tonnes.

TOP...

It is possible that additional MAN HX77-based Enhanced Palletised Load System (EPLS) trucks will be ordered by the Army...

ABOVE...

...the aging and well-used Leyland and Foden (shown) DROPS (Demountable Rack Off-loading and Pick-up System) fleets now in need of replacement and unlikely to remain viable beyond 2020.

BELOW...

To meet the MoD's ongoing Light Equipment Transporter (LET) requirement, Oshkosh has proposed the conversion of surplus Wheeled Tanker tractor units, and displayed this prototype example at DVD this year.



BELOW...

The last of the MoD's 7,285 Support Vehicles delivered to the MoD by MAN Truck and Bus UK Ltd (an HX60 (4x4) 6-tonne cargo) was displayed at DVD.



ABOVE...

Just prior to DVD the decision was made to bring the Out of Service Date (OSD) for the Land Rover Defender XD fleet forward to 2020, by which time the bulk of the remaining Pinzgauers will also have been retired.

Land Rover is another iconic 'British' brand that could soon join the ever-increasing list of those to leave British military service... With only a handful of aged Defender models still remaining in RAF service, all that now remains are around 8000 military-specific Wolf eXtra Duty (XD) models. These had been expected to have a refurbishment of some sort and remain in service until around 2030. However, just prior to DVD the decision was made to bring the OSD for this fleet forward to 2020, by which time the bulk of the Pinzgauer fleet will also have been retired...

In other Land Rover-related news... by early-April 6800 XD models had been through Project Remus, a three-year £39 million MoD project to improve driver/passenger safety, meet critical legislative standards and address chassis corrosion issues. A small number of vehicles currently in Afghanistan, plus some TUL (Truck Utility Light; 90-inch WB) that were to

ABOVE...

have been cast, remain to be done and when complete later this year around 7000 vehicles in total will have been through the Remus upgrade. The XD ambulance variant (Pulse) was not covered by Project Remus, and from a current fleet of 776, around 420 examples are expected to be retained following ongoing restructuring of the Army. This allows for surplus examples to be converted under Project Hebe, with conversion into doublecab pick-up configuration for a mortar role one option under this project.

It was disclosed at DVD that a project to replace the side-mounted spare wheel of the XD with a rear-mounted swingaway spare wheel carrier was under commercial consideration, with modifications likely to be undertaken at unit level. It also became known that the proposal highlighted at last year's DVD to stretch surplus TUL to TUM (Truck Utility Medium; 110-inch WB) will now not be taken forward.

"Land Rover is another iconic 'British' brand..."



ABOVE CENTRE...

With 24R 21 and not the standard 1600R 20 rear tyres, this is the wider version of the Support Vehicle SX45 heavy wrecker. The Army was to receive around 60 of this version, but ultimately opted for to have a full fleet (288) of standard width versions.

ABOVE & RIGHT...

MAN also displayed a prototype light recovery vehicle, this based on an HX60 and clearly targeted at a potential UK MoD requirement for a small number of vehicles of this type to replace the remaining Bedford MJ-based light recovery vehicles used by deployable forces.



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Underwater Wrecks

SIMON BROWN EXPLORES THE DEPTHS TO BRING US AN UNUSUAL SELECTION OF MILITARY VEHICLE IMAGES





The bottom of a lake may seem like an unusual place to search out military vehicles, but with diving becoming an increasingly popular activity, the search for ways to increase the enjoyment of the diving experience has seen an increasing number of redundant military vehicles being resigned to the depths to provide man-made attractions.

To this end a selection of post-war armoured vehicles have ended their days still serving a useful purpose, namely as underwater diving attractions for adventurous divers at several sites around the UK. Obviously the mixture of water and steel has the inevitable result of corrosion, but the use of armoured vehicles, with skins of

up to an inch thick will at least ensure they will be around to enjoy for many decades.

The use of such vehicles has made these diving sites popular venues for adventurous divers and here we have a selection of images taken during various diving expeditions, offering an unusual view of these once proud vehicles as they slowly turn to rust, providing homes for their new underwater residents along the way. Fortunately the vehicles used are not rare, being available in great numbers and therefore not of any great historical value, so there's no need to worry about this practice being considered as an act of vandalism against military vehicles!



PHOTOS ...

Top left: A diver is caught in the shafts of light from a remote flashgun inside the hull of an AFV 432. At a depth of 22 metres, this example has been stripped and is now at Vobster Quay Inland Diving Centre, near Mells in Somerset.

Top right: this Combat Engineer Tractor sits on the bottom of Horsea Island Lake, part of the Portsmouth-based HMS Excellent. Since this image was taken, access to Horsea Island is restricted to military divers.

Above: A diver looks inside the cab of an Alvis Stalwart MkII now serving as a dive attraction at the National Diving and Activity Centre near Chepstow, Gloucestershire.

PHOTO...

An Alvis Stalwart FV622, now serving as a dive attraction at the National Diving and Activity Centre near Chepstow, Gloucestershire.





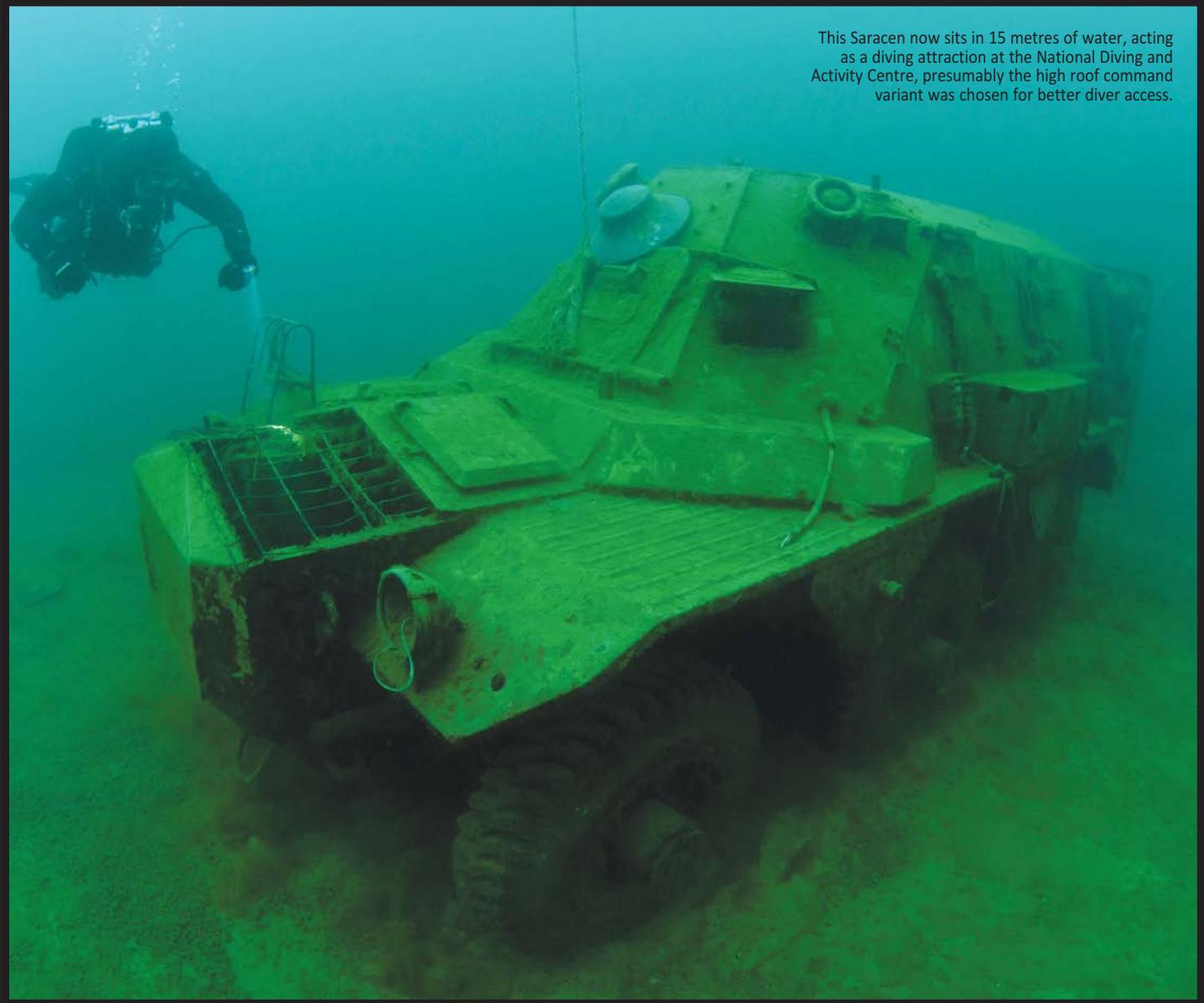
PHOTOS ...

Above: The driver's position of an Alvis Saracen FV610 armoured command post. This Saracen now sits in 15 metres of water, serving as a diving attraction at the National Diving and Activity Centre near Chepstow, Gloucestershire.

Right: Water jet propulsion units gave the Stollie a 6-knot amphibious pace, but now this example lies at the bottom of the lake at the National Diving and Activity Centre near Chepstow, Gloucestershire.



This Saracen now sits in 15 metres of water, acting as a diving attraction at the National Diving and Activity Centre, presumably the high roof command variant was chosen for better diver access.



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Changing times at Land Rover led to the production of the 40th anniversary Ninety, the first in a sequence of anniversary models which has led to this year's 65th anniversary Defender LXV. John Carroll ambles down memory lane.

AND MUCH MORE! ■■■■■

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Jeep Rebuild Pt.2

We continue our look at the restoration of a **WW2 JEEP**

Above & below: many of the Jeeps we see today at military vehicle shows up and down the country started life as rusty restoration projects, only to be lovingly brought back to life by their dedicated owners.



Last month we looked at the strip down of the Jeep courtesy of local collector, enthusiast, show organiser and businessman, Bob James. Bob has rebuilt many Jeeps over the years and there's very little he hasn't come across during the restoration of his Jeeps. In that time he's encountered everything from serious corrosion leading to more fresh air than tin, wrecked engines, distorted chassis, broken axles and missing parts, but nowadays nothing is insurmountable thanks to an extraordinary availability of parts through a network of Jeep specialists selling quite literally everything you need to rebuild a wartime Jeep.

Last month, the removal of the body revealed damage to the chassis

in the form of a bent rear crossmember and a none-standard front bumper (which also acts as a front crossmember when bolted in place), but rather than having to replace the rear crossmember, it was possible to help it back into place with the aid of a hammer, blocks of wood and a straight edge to check the alignment. The front bumper was simply unbolted and replaced with a new part.

Despite their age, it's quite unusual to find serious corrosion on the chassis unless it's been stored outdoors for many years. Normally it's a case of cleaning it up, checking for any distortion and then repainting, and that was the case with this Jeep and indeed the 1943 Willys I restored

Work Begins - Cleaning up and repair...



5



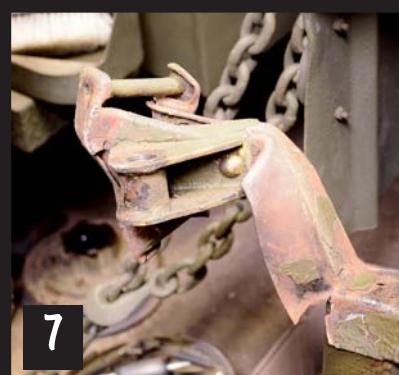
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6

It's not that common, but the underside of this body tub was sprayed with underseal and took many hours to remove in order to reveal the state of the bodywork beneath.

1.



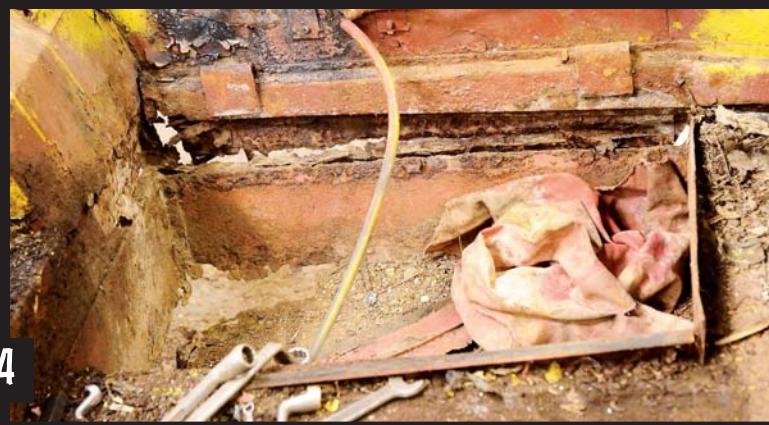
3.

Damage to the front end of the chassis rails is common and Bob replaced the mounting plates for the front bumper as well as the bumper.

7



3



4

some time ago. The body, however, is a different matter, and the floors, fuel tank recess and 'top hat' stiffening sections are very prone to rusting out, and depending on the extent of the corrosion you can either repair the tub or simply replace it with a reproduction body tub.

The tub on Bob's Jeep wasn't too bad, and just need a few patches and the replacement of some of these stiffening sections, which incidentally have wooden sections inside for additional strength, however, when this wood gets wet it holds in the damp and is one of the major causes of the troublesome corrosion in these channels. Bob had an additional problem with the tub in that the previous owner had undersealed the underside of the tub, which had to be painstakingly removed in order to properly check the condition of the bodywork beneath the underseal.

4.

Although this is another Jeep body tub, it illustrates the common problem with rust around the fuel tank recess.

5.

With the chassis cleaned and repaired it was set aside ready to be painted.

6.

Damage to some mounting brackets is also common, but easily fixed.

7.

And even damage as severe as this to the chassis can be fixed by a skilled mechanic.

8.

With the axles separated from the rest of the vehicle it's good policy to strip down the differentials and replace any worn or damaged parts, especially things like bearings and seals. The parts are relatively cheap and the work isn't too complicated for a competent DIY mechanic, and it could save any problems later on.

9.

Bob is so well versed in Jeep restorations he was running two side by side. Here we see the front and rear axles complete with their springs.

10.

Initially the wheels were left on the axles to make them easier to move around while they were pressure washed to remove the many years of oil and dirt. Removing the build up of oil and mud will normally reveal any problems such as oil leaks or damage to the casings.

11.

The skillful use of an oxyacetylene torch is a common way to free off an engine that has seized. The expansion and contraction of the pistons and rings from the heating and cooling is normally enough to break the rust seal.

TIME MANAGEMENT

As with any restoration project, time management is essential if the project isn't to drag on, and it's often a case of doing several jobs side by side. In Bob's case, while the chassis was being worked on he was also working on the stripped down engine. The engine was seized, but after running diesel down the bores and leaving it for a week or so he carefully took the 'hot spanner' or oxyacetylene torch to the inside of the bores to break the rust seal between the piston rings and bores. Within an hour the engine was free, and closer examination revealed that the bores were intact and in good condition, just needing a new set of rings and a clean up.

Bob also dragged the rolling axle assemblies outside, leaving the springs, axles and wheels as one unit to make handling them easier. Once outside he was able to pressure wash the axles to clear the years of oil and gunk, making the final strip down that much easier. It's common practice to replace seals and bearings on Jeep axles, and like everything else are readily available and for what they cost is worth doing as a matter of course to avoid any problems in the future with oil seeping through to the brakes, which would end up costing you even more money!

With the chassis stripped, cleaned and repaired it was set aside ready to be painted while the work on the axles, engine and drivetrain continued, and next month in our third installment we'll be looking at more aspects of the restoration as work progresses rapidly.



10



11



8



9

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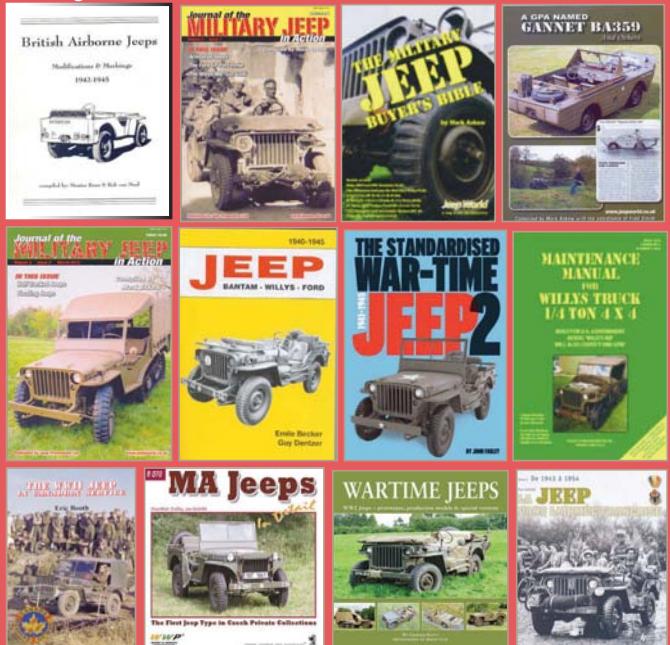
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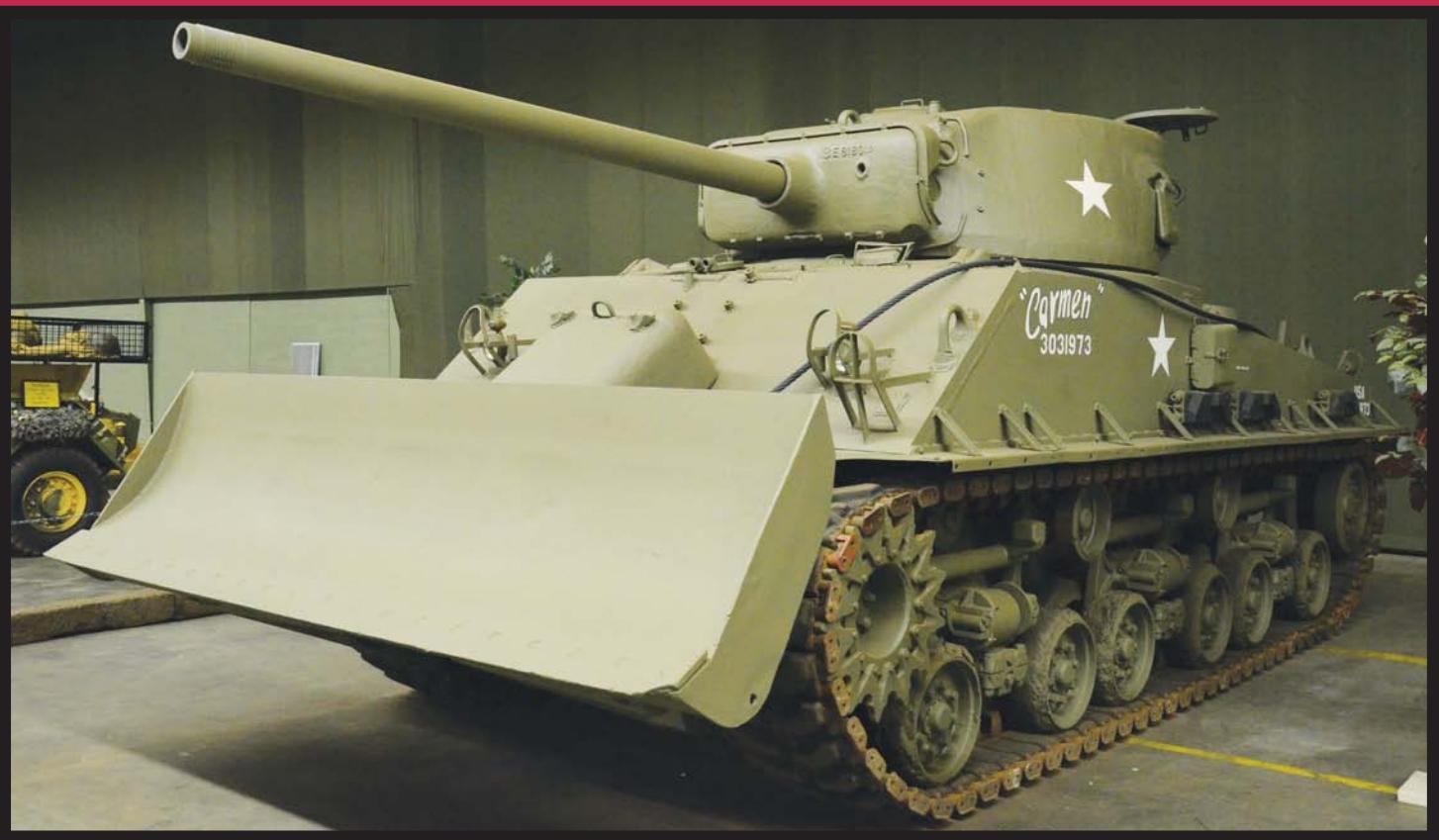
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Danville Tank Museum

ROY STEVENSON VISITS THE AMERICAN ARMOR FOUNDATION TANK MUSEUM, DANVILLE, VIRGINIA

MAIN PHOTO...

The U.S. M43A3E8 Sherman tank with plow attached is a rarity with a bizarre history. This particular Sherman was buried for 16 years at a Long Island mental institution in New York before its recovery by the museum staff.

By my count, I've visited close to 400 military museums of different sizes and shapes in three or four dozen countries, but the American Armor Foundation Tank Museum in the small town of Danville, Virginia, is one for the books. Danville (population 43,000), on U.S. Highway 29 in rural southern Virginia is hardly where you'd expect to find a world-class tank museum.

Tucked away under some trees, the museum boasts an impressive collection of 118 vehicles, which includes tanks, armoured personnel carriers, armoured cars, and tracked and wheeled artillery. Throw in some mobile anti-aircraft guns, a smattering of amphibious vehicles, Jeeps, and mortar carriers—plus a couple of missiles, and you've got one of the most extensive collections of U.S. military armour in the country.

It takes visitors considerable time to walk along row after row of tanks and guns in this cavernous shuttered mill building. With 330,000 square feet, the

museum has no shortage of space and capitalizes on this with some superb battle dioramas.

You'll see a Vietnam War rice paddy scene, an NVA sniper concealed up a tree, a U.S. M108 Self-Propelled Howitzer Tank (1963) concealed in a cornfield, a U.S. Browning Quad-M51 .50 Calibre Machine Gun amidst the rubble of a World War II Belgian town, a World War II Japanese machine gun bunker made from railroad ties, and a WWII German PAK 40 7.5cm anti-tank gun on a dirt field, ready to fire.

FUN & GAMES

The museum is not above having some fun with its dioramas. In one scene, a G.I. sits in front of an M5481A1 Cargo Carrier holding a rubber chicken, with a large wasp's nest hanging from the tree overhead. A T-72 tank sits atop a car that is crushed beyond all

recognition while another diorama features a Soviet T34/85 tank in the rubble of Berlin with a German soldier buried beneath the tank treads. Ouch.

By far the museum's oldest tank is the antique WW I M1917 6-ton Special Light Tank. "She's the Belle of the Ball, the first U.S. tank ever produced", says Museum Curator and founder William Gasser, screeching his tricycle to a stop next to me. He uses the tricycle to commute around the enormous museum on maintenance tasks. The sight of this bewhiskered man in his sixties, wearing spectacles, braces, military camouflage pants, and packing a six-gun in a side holster (for security - so behave!) on a tricycle is hard to take seriously. He's eccentric, quirky, perhaps a little over-the-top, and definitely obsessive, but it turns out that William is a walking encyclopedia of all things military. Over the course of several encounters, as William rattles off the specs and performances



LEFT...

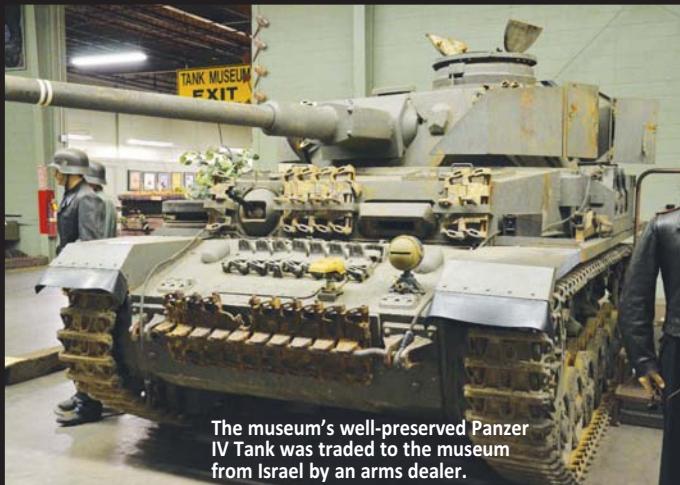
The M1917 weighs in at just 7.25-tons, her 42-hp Buda 4-cylinder, water-cooled engine gave her a rip-roaring top speed of 5.5 mph!

BELow LEFT...

In one scene, a G.I. sits in front of an M5481A1 holding a rubber chicken, with a wasp's nest hanging from the tree above.

BELow RIGHT...

The sight of this bewhiskered man in his 60s, wearing spectacles, braces, camo trousers on a tricycle is hard to take seriously.

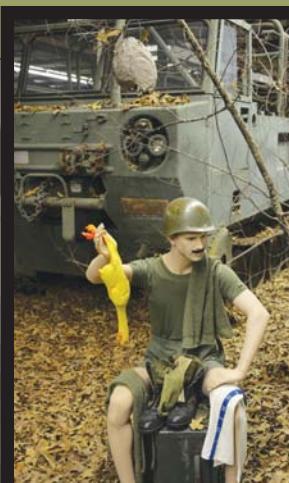


The museum's well-preserved Panzer IV Tank was traded to the museum from Israel by an arms dealer.



A Soviet T34-85 tank in the rubble of Berlin with a German soldier buried beneath the tank tracks!

"...the American Armor Foundation Tank Museum in the small town of Danville, Virginia, is one for the books..."



The LVT-4 Water Buffalo is an up-armoured version of the LVT-2, fitted with a drop down rear door.



TOP LEFT...

A rare Swedish STRV 70 Medium Tank with its oblong turret that narrows to a distinctive seven-sided point housing the gun barrel.

ABOVE...

The museum's post-war tank collection boasts a rare U.S. M103A2 Heavy Tank, of which only 219 were built, for the U.S. Marine Corps.

RIGHT...

The infamous U.S. M247 Sergeant York anti-aircraft vehicle was built on an older M48A5 chassis. This dog cost \$6.97 billion to design and build.

of the tanks, guns, and other vehicles, I conclude that he's simply a military genius who's passionate about his military history and equipment. I might even describe him as a kindred soul.

"Most of the museum's vehicles are donated or on lease from the U.S. Military, while the rest of the stuff is my personal collection", William tells me when I ask where he got it all.

William explains that of the 950 M1917 World War I tanks that were built, only 10 were deployed in Europe. Three hundred were given to the Canadian Army and the remainder of the vehicles were used as the standard light tank of the U.S. Army right up until 1931.

Just one dozen M1917 Light Tanks still exist today and the museum's particular example was used in the classic war movie, "For Whom the Bell Tolls" and also in a Laurel and Hardy movie!

The M1917 is nicely restored, painted a lime green colour, with nuts and bolts sticking out all along her hull. Weighing in at 7.25-ton, her 42-horse power Buda 4-cylinder, water-cooled engine gave her a rip-roaring top speed of 5.5 mph.

US BIAS

U.S. tanks predominate throughout the museum. An impressive array of the Patton series includes an M47 Patton Tank (1952), an M48A5 Patton Tank (1970s), an M60A1 Patton Tank with M9 Dozer (1959-1990s), and an M60A2 Patton Tank from the mid 1970s. The Tank Museum's World War II armour collection will delight aficionados of that era.

The U.S. M43A3E8 Sherman tank with plow attached (1944-45) is something of a rarity with a bizarre history. This particular Sherman was buried for 16 years at a Long Island mental institution in New York before its recovery by the museum staff, and is the only M2 plow-mounted Sherman known to exist in any museum anywhere in the world.

Made by Buick, the museum's M18 Hellcat Tank Destroyer (1944) was rescued from Yugoslavia (now Bosnia) and bears many bullet impact scars from battle, and flanked by a small squad of models of German soldiers, the museum's well-preserved Panzer III Tank has a good back-story having been traded to the museum from Israel by an arms dealer.





Gulf War Relics

Above left: An Iraqi T2S3 Self Propelled Howitzer captured in the Gulf War.

Top right: This 40-ton Soviet T54A Iraqi Tank was captured by U.S. forces and sent to the 203rd Military Intelligence Battalion in Aberdeen, Maryland.

Right: Another Gulf War relic, namely a T-72 tank, sits atop a car that has been crushed beyond all recognition.



The LVT-4 (Landing Vehicle Tracked) Water Buffalo is an up-armoured version of the LVT-2, fitted with a drop down rear door. Used in the Pacific from mid 1944 onwards, this amphib proved very useful as it could carry 30 men, or a Jeep, or a small field gun. The museum's LVT-4 languished for over 25 years in a New York junkyard as a local landmark before she was rescued and restored.

William Gasser tells me that many of the vehicles remain unrestored because of their sheer number and the prohibitive cost. Nevertheless, the unrestored tanks emanate a certain authenticity as you walk past them. Fans can adopt a tank and contribute towards its restoration.

POST-WAR

The museum's post-war tank collection boasts a rare U.S. M103A2 Heavy Tank (1952-73), of which only 219 were built, for the U.S.M.C., and a U.S. M247 Sergeant York Tank, plus a U.S. M551A1 Sheridan Light Tank (1966), and a U.S. M41A3 Walker Bulldog Light Tank dating from the 1950's.

A few foreign tank treasures at the museum catch the eye, including a rare Swedish STRV 74 Medium Tank (1958-1984), one of only seven remaining in the world and the only one in the western hemisphere.

Armoured Personnel Carriers are also represented at the tank museum with the U.S. M75 (1951), the U.S. M114 (1960's), and a Hungarian Army PSZH-IV APC (mid 1960s). The M2 Bradley Infantry Fighting Vehicle (1981s) is a cross between a tank and an APC, and is designed to scout ahead of the M1 Abrams tank. During the Gulf War, the M2 destroyed more Iraqi armoured vehicles than did the M1 Abrams tank. The museum's Bradley is the only one on exhibit in any museum.

The museum's impressive tracked and wheeled artillery collection is one of the finest in the world and includes a nicely restored U.S. M56 Scorpion Self Propelled Gun (1958), a U.S. M55 Self Propelled Howitzer (1955-1970s), and a rare U.S. M44 Self-Propelled Howitzer (1954), one of only three remaining in museums today. Another rare gun is the US M108 Self-Propelled

Howitzer Tank (1963), and an Iraqi T2S3 152mm Self-Propelled Howitzer (1973) that was captured in Operation Desert Storm. A U.S. M54 90mm Cannon (1958) rounds out this great collection.

The museum's 24-ton U.S. M48 4.2" mortar Carrier (1950's) was found at a Pennsylvania Army Tank Dump where it was scheduled for destruction as target practice. The Army donated this piece to the museum.

MUST SEE

The Danville Tank Museum is not a place to aimlessly walk through the galleries without a plan, because you'll soon run out of time before you can see everything, so be sure to allocate enough time in each of the galleries to take it all in.

A visit to the Danville Tank Museum is a worthwhile experience for the casual military fan and the hard-core vehicle enthusiast. You will not be disappointed.

Website: www.aftankmuseum.com
Email: aafant@gamewood.net



OPEL BLITZ...

There were several variants of the Opel Blitz, including this one fitted with an enclosed rear body.

Militracks 2013

SIETE MEETER VISITED OVERLOON FOR THIS POPULAR ANNUAL EVENT



HETZER...

The Crompton Collection's Hetzer returned, much to the delight of the visitors.



HORCH...

This Horch wireless car was a rarity and another newcomer to Militracks.

Now a regular event on the military vehicle show calendar, Militracks sees Liberty Park Museum in Overloon opening its doors (and surrounding woods) to an invite-only collection of wartime Wehrmacht vehicles that are driven around an off-road course while at the same time giving rides to the paying public. The first holding of the event was in 2010 and the huge success of the first year and the years since has seen Militracks growing into a must-see event on the military vehicle calendar, and this year the event attracted more than 8,300 people, a substantial increase on the first year and despite the less than

perfect weather. Unlike most events held in the UK and the rest of Europe, a select group of privately owned, original, wartime German vehicles are invited to the museum, providing the owners with an opportunity to demonstrate the off-road capabilities of the vehicles, and as in previous years, the 2013 attracted a number of rare types. In return the exhibitors are well looked after by the organisers both during the event and in the evenings, plus they supply all the fuel they can use!

As in previous years the visiting public were able to purchase tickets to ride in their favourite vehicles, from





the smaller BMW and Zundapp motorcycle combinations to the mighty Hetzer and T-34/85 tank and there was certainly no shortage of takers! This year there was an added attraction in the form of the museum's Leopard tank, and while it wasn't a WW2 German tank, it still drew plenty of attention as it took to the off-road course and the passengers sitting up in the turret didn't seem to mind that it was a modern Panzer, and was certainly the biggest of the vehicles at the show.

Sadly, after several years of being blessed with good weather, this year Militracks was subject to some wet weather, and while it didn't spoil the

LEFT...

This Maultier half-track cargo truck was a newcomer to

MAIN PHOTO...

Militracks...
...as was this rare example of a Steyr 640 6x4 truck.



Softskin Half-Tracks

Right: The late model Sd.Kfz. 7 half-track from the Crompton Military Vehicle Collection in the UK returned again this year.

Below: There were considerably fewer Kettenkrads at the show this time, but this was a nice original looking example.



Below: This Sd.Kfz. 6 made its first appearance at Militracks in 2012 and was back again this year. Although unfinished, with some cosmetic work needed to finish it off, it still looked great at the show.

Right: This early troop carrying variant of the Sd.Kfz. 7 last appeared at Militracks in 2010, the first year the show was held. Then it had a problem with one of the roadwheels, this year it was trouble free.



Armoured Half-Tracks

The Sd.Kfz. 250 Neu from the Crompton Collection was at the show again, as was the second example that appeared at last year's show for the first time. Both vehicles spent a considerable amount of time on the off-road course that surrounds the museum buildings.



enjoyment of the visiting hoards, it did make the job of cleaning up the vehicles afterwards that much longer! Many of the vehicles at the event were regulars, having appeared at the previous shows, and amongst them was the 8-ton half-track, Hetzer, Sd.Kfz. 251 half-track, Sd.Kfz. 250 half-track, and Schwimmwagen brought along to the show by UK collector Bruce Crompton of The Crompton Military Vehicle Collection, however, this year also saw Mr Crompton bringing along his Bussing NAG recovery crane.

NEW VEHICLES

This year saw a number of other new vehicles turning up for the show, as well as a number of returning vehicles, such as the second Sd.Kfz.7 finished in

Panzer Grey. There were some real rarities amongst the vehicles this year, something not lost on the visiting public or indeed the information hungry model makers at the show. The majority of the exhibitors were noted European collectors travelling to the event from Germany, Belgium, Luxembourg and of course the Netherlands, all bringing with them a stunning collection of wartime German vehicles that must have been worth a small fortune.

Over the weekend there were a number of events such as the model show and the numerous trade stands in the militaria market, which is always a good place to try and hunt out a bargain or two and judging by the numbers of people at the market there was plenty of interest out there.

"There were some rarities amongst the vehicles this year something not lost on the public..."

Museum Vehicles

For this year's show the organisers thought they would try something different and the Panther tank, which normally resides inside the museum, was brought outside and put on display with the other vehicles. The museum's ex-Dutch Army Leopard 1 also joined the museum's T-34/85 on the off-road course giving rides to visitors.



Volkswagen Machines



I came across several vehicles from the German manufacturer Volkswagen at the Militracks show this year, including a rare wartime Beetle (above), several examples of the classic Kubelwagen (right) and the amphibious Schwimmwagen, all of which were wartime dated and symbols of the diversity shown by Volkswagen.



"...noted vehicle collectors from right across Europe travelled to the Militracks 2013 event..."

NEXT TIME

Miltracks is a great event for anybody interested in World War Two German vehicles. A wide range of motorbikes, transporters, command cars, together with half-tracks and tanks were on display during the weekend, and the opportunity of taking a ride around the 1-mile circuit surrounding the museum makes this unique show a sure fire winner. I'll certainly be back next year, and if you would like to find out more you can check out the website at: www.militracks.nl

Softskin Trucks

Amongst the different trucks attending Militracks this year was this fine example of a Ford V3000 truck, the Bussing NAG workshop truck, which came over from the UK for the first time, and this Steyr 1500A truck.



HORCH...

As with previous years, Militracks attracted a number of interesting wartime German staff cars, including a number of Horch variants. The top photo shown below is a late type staff car with the side mounted spare wheel inside the vehicle.





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STARS OF SANDSTONE



MAIN & ABOVE...

Kicking up dust at speed, Des Clarke puts the Sherman through its paces. It has a Mercedes Benz Twin-turbo V8 engine, driving through an Allison automatic gearbox, then through the tank's original gearbox and transmission.

(Photo - Keith Wetmore)

JOHANN LEHMAN REPORTS ON AN EVENT THAT HIGHLIGHTED THE MILITARY MIGHT IN THE MALUTI'S





It is apparent everywhere you look on the sprawling Sandstone Estate that the owners are striving for excellence. From the carefully tended lawns, well designed layout of buildings and storage sheds, and vast collection of steam driven and military machinery, the passion of owner Wilfred Mole shines through. The annual Sandstone Heritage Trust show held in May this year made a point of showcasing the Trust's large serviceable collection of Military vehicles and equipment. Set amongst the picturesque Maluti Mountains of the Eastern Free State, this working farm boasts 26km of 2ft narrow gauge track on which a variety of restored steam locomotives and wagons are pressed into service in support of farming activities.

The Military vehicle collection sits comfortably within this scenario as the farm has strong technical resources for vehicle restoration and maintenance and there is adequate space to put the vehicles through their paces. The collection started ten years ago and relations were cemented with the Armour Museum of the School of

ABOVE LEFT...

Sandstone is a picturesque setting for such a fantastic event, with breathtaking scenery and stunning views everywhere.

ABOVE RIGHT...

Sandstone's 1915 Feldbahn locomotive manufactured by Henschel in Germany in 1915 and which saw service behind the lines in the First World War proudly displays its SA Armour Museum insignia.

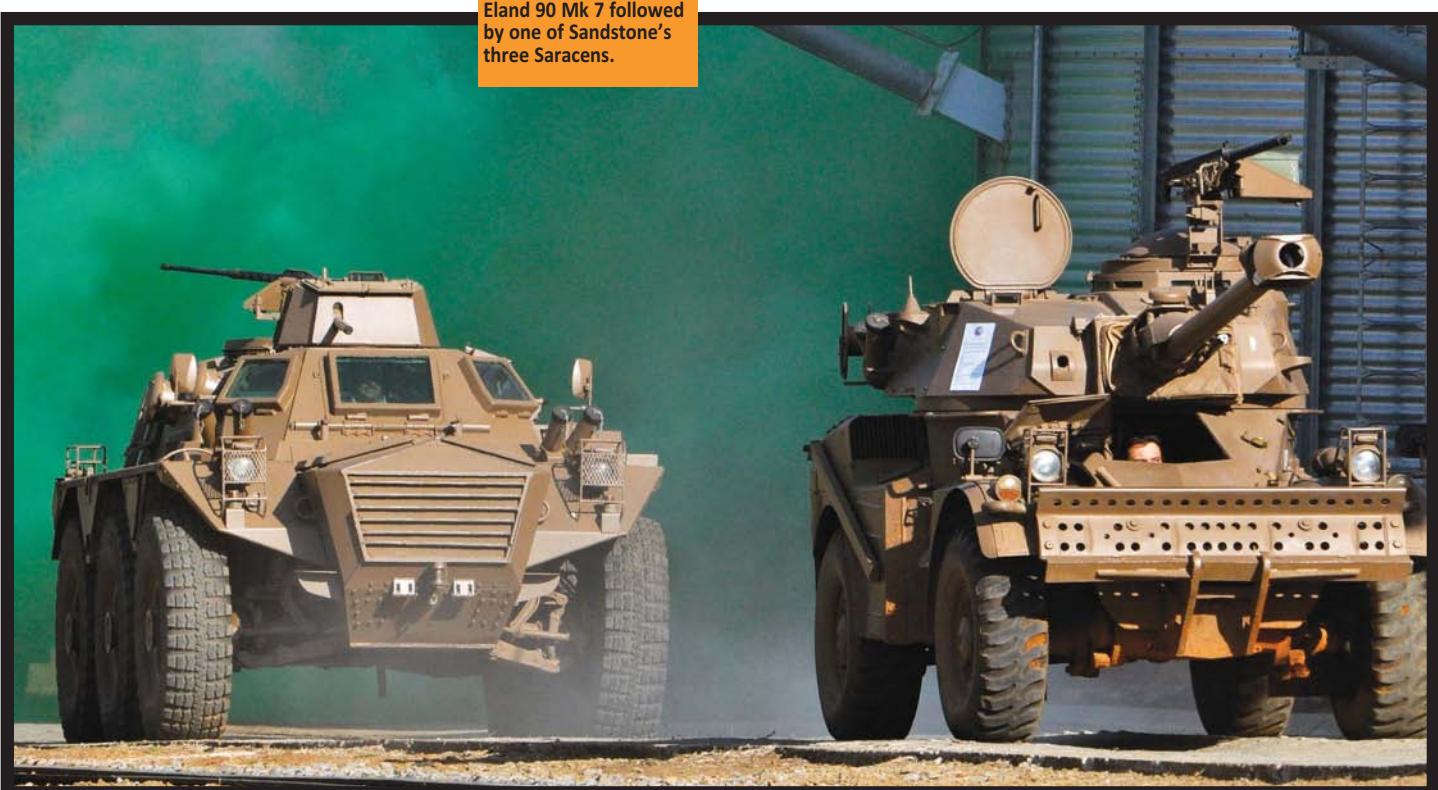
LEFT...

The famous Casspir looks comfortable in the rugged environment at Sandstone Estates in the Eastern Free State. This is a Police Casspir designed for crowd control activities.



BELOW...

Eland 90 Mk 7 followed by one of Sandstone's three Saracens.





PHOTOS ABOVE....

Above left: Two examples of the SA produced SAMIL 20, 2-tonne 4x4 trucks. The chassis is fitted with container twist locks, so even the troop carrier on the right can be removed in seconds. The example on the left is an office variant, complete with desks and a safe.

Above right: The organisers of the Stars of Sandstone event, Wilf and Lyndie Mole. (Photo courtesy - Peter Mole)



PHOTO BELOW...

Sandstone Heritage Trust's Buffel Mk1A providing visitors to the 2013 Stars of Sandstone event with a genuine and authentic Military experience by following the border road between South Africa and Lesotho, which is on the estate.



PHOTOS...

Right: the SAMIL 50, a 10-tonne Gun Tractor used with the legendary G5 Howitzer, is a newcomers to the collection.

Below: dust partly obscures the convoy with just the Casspir and SAMIL 100 Gun Tractor identifiable.



Armour in 2003. Since then the Trust has worked closely with the Museum in order to ensure that examples of South African designed or modified military vehicles since WWII are saved, restored and preserved. Examples of Ferrets and Saracens, significantly modified to suit local conditions, sit comfortably next to more modern versions of the Eland 60, Eland 90 in Mk 7 form and a magnificent Ratel 90 AFV.

Complementing these are SAMIL 100 and SAMIL 50 Gun tractors, which on the day were towing the 3.7" QF AA Gun and a 25-pounder artillery piece. Other interesting Military Machinery is a well preserved BM21 Grad, otherwise known as 'Stalin's Organ' and, arguably the star of the show, a fully restored Sherman tank.



VIPS

This year the event was attended by the GOC of the Armour Foundation of the SANDF, Brig Genl Chris Gildenhuys. He was invited to take the salute of a Military vehicle drive-past which was particularly unique as it spanned Military transportation over the last 150 years.

Leading the parade was a trained team of Afrikaner oxen. This was followed by a 1901 Fowler B5 Road locomotive imported to South Africa during the Anglo-Boer War to transport ammunition wagons in support of the British infantry. Next came a 1915 Henschel Feldbahn locomotive manufactured for the use of the German Army in WW1 and which saw service behind the lines on the Western

Front. Behind the Feldbahn came Sandstone Heritage Trust's entire collection of serviceable Military vehicles with the Sherman tank bringing up the rear.

Once again the event was strongly supported by the officers and NCO's from the Armour Museum at the School of Armour in Bloemfontein. All vehicle movements are planned, managed and controlled by them to ensure that essential Military discipline is maintained throughout. Visitors and enthusiasts are encouraged to inspect the vehicles, talk to the men who are trained to operate them and, of course, ride in them to experience their unique capabilities.

Andy Selfe, a dapper 60+ year old, who also boasts an impressive Military

ABOVE RIGHT...

It was Malcolm Stuart Finlay's birthday and a ride in Sandstone's superb Sherman tank made it one he will remember for a very long time!



TOP LEFT...

Members of the SA Armour Museum, who were such a help during Stars of Sandstone. They helped sort out mechanical problems and were always available to take a convoy out.

ABOVE RIGHT & LEFT...

Cpl Andy Selfe (pictured left) gives the Salute from the turret of the Eland 60. His uniform dates from 1969 when he trained in these vehicles. The Salute is returned by General Officer Commanding, South African Armour Formation, General Chris Gildenhuys (pictured above).

ABOVE FAR LEFT...

The Blesbok APC, Casspir and SAMIL 50 Gun Tractor emerge from the smoke to take their salute.





TOP LEFT...

These two vehicles could easily have been in battle on opposite sides during the war in Angola; Sandstone's Grad Multiple Rocket Launcher and behind, a Blesbok, the cargo-carrying version of the Casspir mine-protected vehicle.

LEFT...

These CMP Ford trucks were in use with the SA Navy until the mid '60s.

ABOVE...

A smooth ride at any speed is guaranteed in this Ratel 90, new to the Sandstone Heritage Trust Collection.

background, was an enthusiastic and knowledgeable guide. A personal friend of Wilfred Mole, he has been involved and assisting in the event over the past years. He mentioned that the Trust is aggressively pursuing vehicles which deserve inclusion in the current line-up. There is also a queue of vehicles waiting for restoration and inclusion in the collection including Tank transporters and armoured recovery vehicles.

SANDSTONE PHILOSOPHY

In association with the School of Armour, the Sandstone Heritage Trust has developed a philosophy surrounding their Heritage Military vehicle collection. The first is that they hold a special place in the hearts and minds of people worked on and fought in them. Secondly, the South African designed and modified vehicles are of particular interest to international enthusiasts because of the unique adaptations and design features. Thirdly, they are a delight to a younger generation who never experienced the thrill of riding in a tank or personnel carrier – especially if a father or brother served on them.

Quite a few of the old warhorses have found an additional new lease on life by being actively involved in the day to day farming operations. Coupled with their role of collecting and preserving a Military vehicle collection, the Sandstone Heritage Trust is, in essence, involved in a "swords to plough shears" operation. Wilfred Mole believes that, perhaps more simply worded - "it is war machinery deployed in a peaceful environment in order to attract visitors to a beautiful and largely undiscovered part of South Africa", couple this to the urgency of job creation in South Africa and the tremendous potential of future enthusiasts and international visitors to this unique collection, who could argue?

If you remember the smell of Military diesel fumes early on a winter's morning (or wish to experience it for the first time!) a visit to Sandstone is well worth the effort.

The next planned event is the Easter Festival, which runs from 12th – 21st April 2014. For more information please visit the website at:

www.sandstone-estates.com

Photos courtesy - Keith Wetmore,
Sandstone Estates, Johann Lehman



The SAMIL 50, a 10-tonne Gun Tractor, is a newcomer to the Sandstone Heritage Trust Collection.



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Duxford 2013

ONE DAY A YEAR DUXFORD DITCHES THE AIR SHOWS IN FAVOUR OF WHEELS AND TRACKS.
JOHN WOOLFORD REPORTS...



Left: As small and agile as a Jack Russell terrier and our first line of defence back in the 1930s: the Carden Loyd carrier.

Main photo: Mistaking Duxford for Kabal the SNAR 10 (aka Big Fred) kicks up a sandstorm.

According to Ray Jones, one of Duxford's army of volunteers and their resident tank expert, many visitors never make it as far as the Land Warfare Hall. They visit the award-winning American Air Museum, designed by Sir Norman Foster, glance right towards what looks like the museum's main storage shed and head back towards the cafe. Once a year, however, the aircraft take a back seat and Duxford hosts its Military Vehicle Show with the largest crowds drawn to the west of the airfield. It's also Father's Day and, as everybody knows, dads like tanks!

First off is a visit to the MAFVA tent to remind myself that kit technology didn't end in the early 80s: anyone who can assemble individual track-links on a 1/72nd tank gets my vote any day of the week, and don't even get me started on brass-etched parts! Start small and increase the size of what you look at throughout the day – it makes perfect sense.

The vast majority of the vehicles on show are regular attendees and the skill is finding something new to check

out. Whilst the show is free to attract any vehicle it wants, restorers are like wolves: very territorial. Given the large number of staff cars on display it's no surprise to discover Warhorse's domination of all things equine continued with the arrival of the Vauxhall D-Type featured in the film.

Another vehicle attracting attention was the Karrier Runway Control Truck although how many people queue up to look at it thinking it's an ice-cream van remains a mystery. This year's military folly award goes to a replica armoured Jeep. A factory authorised experiment, only three were ever made, and thanks to the extra 500kg of plating added to the vehicle none of them saw service. It seems appropriate the Jeep's owner is dressed as a member of the 41st Infantry in a camouflaged pattern jacket so similar to the Waffen SS that was abandoned quicker than the Jeep itself!

With the airfield being used as one of the locations for the George Clooney directed 'Monument Men' a quick search of the site for everyone's



ARMoured JEEP...



"Once a year, however, the aircraft take a back seat and Duxford hosts its military vehicle show "

SHOW REPORT
DUXFORD
2013

Top Left: 500kg overweight with a Body Mass Index that would make any GP cry. The rhino-like replica armoured Jeep.

Centre left: Not a curve in sight: this very rare Ford Canadian Military Pattern truck was making its Duxford debut.

Left: Popular with officers in the RAF, the Standard Ensign RAF staff car was pretty much outclassed in the civilian sector during the early 1960s. A Top Gear special is unlikely.

Below left: The streamlined Dodge D11: if you think this is a sexy looking vehicle, check out the civilian version, it's black and chrome!



ABOVE...

Movember reign: a very clever caption for a very cool moustache.

RIGHT...

The Mk 5 Bantam chassis KARRIER runway control truck: two choc-ices and a ninety-nine please, hold the sprinkles.

RIGHT...

Full face helmet? High viz jacket? Not a chance. Second place on the podium for the best in show, this BSA M20.



Above: How the mighty have fallen. A lack of space in the workshop has seen the Centurion move outside.

Below: Having watched the trailer for The Monuments Men MM1 can't confirm the Bedford Tanker's alleged starring role. The film does look good though. Spoiler alert: the Germans lose.



favourite wannabe Cary Grant proves fruitless. Seeing a Bedford Tanker used in the film is as close as I got to stalking a Hollywood A-lister.

ON THE MOVE

Disappointment is short lived though – it's almost 2 o'clock so it's time for Duxford's speciality: the runway cavalcade. When the M11 truncated Duxford's runway in the late 70s it effectively trapped one of the airfield's main attractions: its B52 bomber. The runway's now too short for the beast to take off, however, such restrictions are of little concern to the Jeeps and trucks as they are marshalled onto the runway through a sea of cones and high-visibility jackets.

The vehicles quickly find their own pace and it's an almost continual procession for the one hour the runway is closed to air-traffic. There's only one other restriction: don't leave any debris behind. From the smallest

Welbike to the behemoth-like Soviet SA-8 Gecko, everything's being taken for a spin. This is as big a treat for the vehicle owners as it is for the crowd.

The last scheduled event of the day is the tank driving. To the rear of the Land Warfare Hall are the workshops of the Duxford Aviation Society Military Vehicle Wing who, as the name suggests, whilst affiliated to the plane spotters are very much obsessed with all things ground based. Whilst they don't have the luxury of such crowd pleasers as Bovington's Tiger I, Tortoise or Black Prince they do have enthusiasm, friendliness and (when it runs, which it didn't) a very big Conqueror tank.

First up is the snow camouflaged BV206 – always easy to spot in the sand and dust. Pete Plume's battered and bruised VT-34 recovery tank proves itself to be the most indestructible vehicle in the arena whilst the Stuart tractor attempts to be the quickest. The number of vehicles



Above: The Ferret scout car: judging by the terrified looking child in the top hatch, perfect for the school run.

Below: The M8 Greyhound: agile and quick, little armour and no firepower: you can't have everything.



"...the show ends with the wonderfully elegant spectacle of a Carden-Loyd pirouetting in the sand..."

running is slightly down on last year but the show ends with the wonderfully elegant spectacle of a Carden-Loyd carrier pirouetting in the sand. Small, in this case, is indeed beautiful.

As I've been chaperoned for the entire time in the tank arena, due to my uncanny ability to put myself in harm's way, I blag a quick guided tour of the workshops with my minder, Michael Bentley. Wishing I'd paid more attention during metalwork at school I'm shown a variety of unidentifiable engine parts: I nod where appropriate and pretend to scribble notes. The restoration of the museum's Centurion tank is still on-going although its removal from the workshop raises an eyebrow. I'm assured the star of the first episode of series two of 'Tank Overhaul' will rise again: it's about money and time at the end of the day.

The day's almost through and I retreat to the Land Warfare Hall to brush the dust off my camera and

decipher my notes and while sitting in the relative gloom I notice several new vehicles: Monty's Grant tank, a Jagdpanther – Duxford has new guests. IWM London's entrance hall tanks have arrived from 'sarf' London, and they really look at home. Hangar 5 residents now include the delightfully named Willy Pusher II Sherman as well as the previously metro-based T-34. Rumour has it some vehicles might be staying. The clock is ticking and I need my tripod: doesn't matter though, I'm being thrown out. Who said journalists never get the respect they deserve? Unlike the B52 I'm leaving, but you can guarantee I'll be back next year.

BELow...

The museum's M5 turreted Stuart. I suspect the two video cameras are a combat modification. What are they filming? The crowd?



ARENA EVENTS...



Below: The museum's colossal M40 self-propelled howitzer comes close to dipping its 155mm gun in the drink.

Left: Recreating the half-track ambush scene from Saving Private Ryan, Duxford's OT-810 is defeated by an invisible bazooka.

Below: A fox hole's view of the Chieftain Mk10. Through a wide angle lens, a truly terrifying moment.



Bottom right: The BV206: somewhere in Norway the British Army have one in desert camouflage (maybe)...



Industry Update...

New Polish AFV Family

BAE Systems Hägglunds and Polish national defense company, Polish Defence Holding (formerly the Bumar Group), have joined forces to offer new tracked armored combat vehicles for a top-priority Polish military program under an exclusive teaming agreement.

The Modular Tracked Platform (MTP) is part of Poland's National Armor Program. The MTP timescales are tight with a production contract likely to be let in 2015 and first vehicles delivered for service in 2018. To meet them the team is proposing a family of vehicles, which draws heavily on CV90 technology and reaps the benefit of millions of man hours and dollars already invested in its design. The proposal will also feature technology previously developed by Polish Defence, formerly Bumar Group, for the unsuccessful Anders armoured vehicle programme.

Representing one of Europe's biggest forthcoming programmes in the heavy tracked vehicles sector, the MTP contract seeks delivery of more than 600 25t-plus tracked fighting vehicles to help address Poland's tracked platform requirements.

BAE Systems Land & Armaments is a leading international provider of armored combat vehicles. BAE Systems Hägglunds is its Swedish tracked vehicles unit and produces the CV90 for Sweden, Norway, Denmark, Finland, Switzerland and the Netherlands. Also in its portfolio is the BvS10 all-terrain vehicle and hybrid drive technology.

State-owned Polish Defence Holding consists of 40 companies, including 20 manufacturing defence sector companies specialising in munitions and rockets, radars, command and control systems, armour and vehicles.



Danish Army M109A3 Replacement RfI



The Danish Army has issued an M109A3 self-propelled howitzer replacement Request for Information (RfI). The RfI has been issued by the Danish Defence Acquisition and Logistics Organization (DALO) which is seeking a new 155mm self-propelled gun to replace primarily the Army's ageing 32-vehicle M109A3 fleet.

The RfI seeks 15 new weapons, and these can either be wheeled or tracked. Capable of carrying a crew of five, the weapons should be able to achieve a range of at least 40km firing extended range ammunition, and a burst rate of six rounds per minute.

According to army-technology.com, the RfI seeks submission of bids for between nine and 21 systems which can be wheeled or tracked by 17th June, while evaluation of the responses resulting in selection of three or four manufacturers is scheduled to take place throughout July. Short-listed candidates will proceed to a comprehensive evaluation programme that will complete in late 2013 or early 2014, followed by the signing of the procurement contract in the middle of the same year. The contract will also feature a ten-year support, spare parts and maintenance package.

Likely contenders include Krauss-Maffei Wegmann's Panzerhaubitze 2000 (tracked), Nexter's CEASAR (wheeled), and BAE Systems Archer (wheeled).

Sources suggest that Denmark's DALO discussed the production and acquisition of Archer with Norway and Sweden, but withdrew in 2007 before signing a co-operation agreement. Around 48 Archer systems, including 24 units each for Sweden and Norway, are currently being manufactured by BAE Systems Bofors.



US Marine Corps selects Oshkosh Defense for next-generation Aircraft Rescue Fire Fighting vehicle

The U.S. Marine Corps has selected Oshkosh Defense, a division of Oshkosh Corporation, to deliver its new fleet of P-19 Replacement Aircraft Rescue and Fire Fighting (ARFF) vehicles. The Oshkosh P-19R will be the Marines' first-response vehicle in aircraft fire emergencies at military bases and expeditionary airfields. This next-generation vehicle will provide more advanced on-road and off-road firefighting capabilities to Marines and replace their current fleet of Oshkosh P-19 ARFF vehicles as the vehicles reach the end of their service lives.



"Oshkosh has been supporting the P-19 ARFF fleet for more than 30 years, and we are honored that the U.S. Marine Corps has selected Oshkosh to provide a new generation of emergency response capabilities," said John Urias, Oshkosh Corporation executive vice president and president of Oshkosh Defense. "Oshkosh leveraged product and engineering expertise from both our Defense and Airport Products teams to respond to the P-19R solicitation. The Oshkosh P-19R delivers a modern, expeditionary platform with advanced firefighting capabilities for the highly volatile situations Marines might face."

The Oshkosh P-19R is based on the proven Oshkosh Logistics Vehicle System Replacement (LVSR) platform – which is currently supporting the Marine Corps' off-road, heavy-payload missions across the globe – and the Striker firefighting systems from Oshkosh Airport Products. The Oshkosh P-19R uses the Oshkosh TAK-4 independent suspension system and the Command Zone integrated diagnostics and automation system to increase the crew's situational awareness and help them carry out firefighting missions.

The Oshkosh Airport Products Group is the industry-leading ARFF vehicle producer, with vehicles in operation at more than 70 countries around the world. Oshkosh began manufacturing the MB-5 ARFF vehicle for the US Navy in the 1960s as well as the military's P-19 in the 1980s. Today, the Oshkosh Striker ARFF vehicle is used by the US military and at airports around the world. Oshkosh developed its Striker ARFF models with input and feedback from firefighters to provide the wide range of safety, reliability and performance capabilities they need.

The P-19R ARFF vehicles, support and sustainment contract was awarded to Oshkosh Defense by the US Marine Corps Systems Command. The total estimated contract value is \$192 million. Work will be performed by Oshkosh beginning in June 2013 and is expected to be completed by May 2018.

Russia to Buy New Mobile & Modern Vehicles



According to a report in Battlespace, Russia's defence minister Sergei Shoigu has announced the Russian Ministry of Defence (MoD) will begin serial procurement of a range of mobile and modern vehicles for use by the Army. The minister was quoted by RIA Novosti as stating that the vehicles are required to transport troops and supplies to areas of military activity. The defence minister did not disclose the vehicle types, the number or acquisition timeframe.

However, Russian Ground Forces commander Vladimir Chirkov told the news agency in January that the MoD was planning to acquire domestically built Tigr vehicles in preference to a follow-on contract for the Italian IVECO Lynx light-multirole armoured vehicles (LMVs).



Moscow reportedly signed a \$24m contract with IVECO Defense Vehicles for the purchase of 60 Lynx vehicles, including semi-knocked down (SKD) assembly in the central Russian city of Voronezh, following deliveries in December 2011. Around 1,775 LMVs were expected to be procured by the MoD at a cost of \$1bn by 2015, as part of the 2011–2020 state arms procurement programme.

The GAZ-233036 Tigr is manufactured by Military Industrial Company at the Arzamas machine-manufacturing plant. Equipped with a turbocharged diesel engine and five-speed manual transmission, the vehicle can carry up to nine personnel or 1.2-tonnes of cargo at a maximum speed of 150km/hr.

Thales Delivers Final Hawkei Variants on Time



Thales Australia has delivered a further two Hawkei vehicles to the Defence Materiel Organisation (DMO) on schedule. The handover of the two reconnaissance variants under Stage 2 of the Manufactured and Supported in Australia (MSA) option of Land 121 Phase 4 means that all six vehicles are now with the Department of Defence for testing. All vehicle delivery milestones have been met on schedule.

The six vehicles comprise two command variants, two utility variants and two reconnaissance variants, plus a trailer.

The majority of the evaluation process is being undertaken by the Commonwealth at Monegeetta in Victoria, and includes survivability testing, communications system integration testing, electro-magnetic interference/compatibility testing, reliability growth trials and user assessments. Vehicles already delivered have so far completed almost half of the planned 100,000km of testing scheduled for the evaluation period. Subject to successful testing of the vehicles, final approval of the project is expected circa 2015, as detailed in the 2012 Defence Capability Plan.

The Hawkei is manufactured at Thales's Bendigo facility in Victoria. Employing 200 people, Bendigo is also home of the Bushmaster vehicle that has proven very successful on Australian Defence Force operations overseas. Land 121 Phase 4 is a Department of Defence project that seeks to provide up to 1,300 protected light vehicles. (Source: ASD Network).



Denmark orders Heavy Tactical Recovery Vehicles

Denmark has ordered 14 Heavy Tactical Recovery Vehicles (HTRVs) from Rheinmetall MAN Military Vehicles (RMMV). Deliveries of the HTRVs are expected to begin in the first quarter of 2014 and are scheduled to be completed in the second quarter of 2015.

The HTRV is based upon the RMMV MAN SX45 high-mobility 8x8 chassis and fitted with a Miller Industries Towing Equipment recovery module, this displayed by RMMV at Eurosatory 2010. The 36-ton on/off-road HTRV is billed as being able to recover disabled vehicles weighing up to 40 tons, or ISO containers weighing up to 17 tons. The vehicle also features STANAG 4569 Level 3/3 ballistic and anti-mine protection.

Denmark received around 250 MAN HX and SX range trucks between 2006-2012, the most recent of those being four SX45 (8x8) wreckers delivered as an Urgent Operational Requirement (UOR) for Afghanistan. These were delivered during 2012 and are almost identical in specification to the UK Support Vehicle (288) and the Irish Army (2) deliveries.

(Primary Source - Jane's Defence Weekly)





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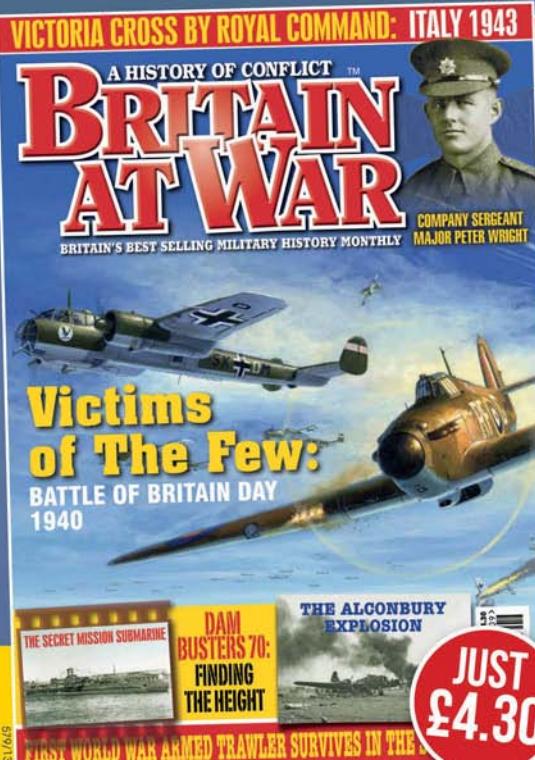


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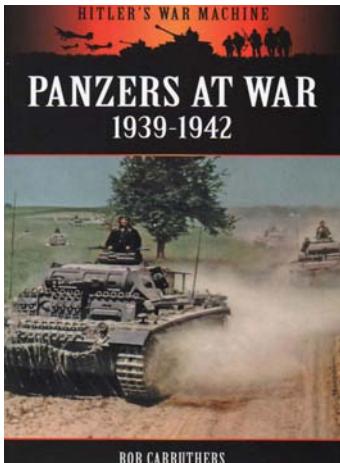
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Britain At War



A fascinating account of the early days of the Blitzkrieg era

The first book this month is the latest release to come from the popular 'Hitler's War Machine' series published by Pen & Sword Books. The first volume deals with the early days of World War Two and the build up of Hitler's Panzer force and the subsequent use in the early Blitzkrieg era as the German Army advanced across Europe. The 128-page paperback is primarily a written account by well-known military historian, Bob Carruthers, however, there are numerous black and white

archive images contained within the book by way of illustrating the various topics, which include: The Panzer Divisions; Tactics & Logistics; Hitler turns west; The Western Desert; Barbarossa and the Final Act in the Desert. This is a useful book to have if you're seeking to learn more about the early days of the Panzers in WW2, but be aware it's more of a written account than pictorial. The book is readily available from many good specialist book sellers.

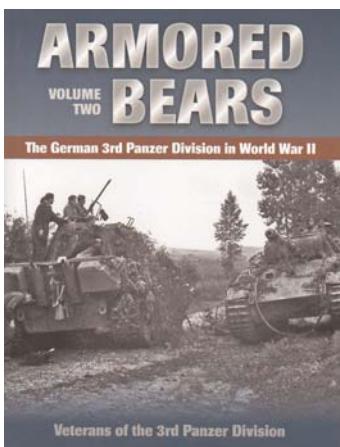
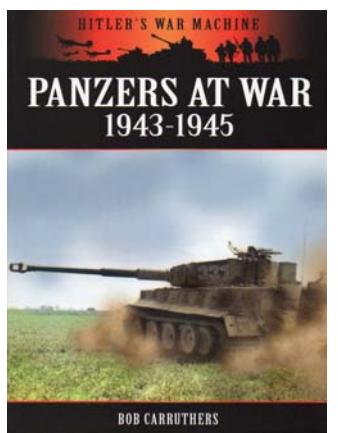
Title: Panzers at War 1939-1942
By: Bob Carruthers
ISBN: 9781781591307
Price: £9.99
Format: Softback
Available From: Pen & Sword Books Ltd. www.pen-and-sword.co.uk

The rapid design and development of Hitler's Panzers in WW2

Title: Panzers at War 1943-1945
By: Bob Carruthers
ISBN: 9781781591314
Price: £9.99
Format: Softback
Available From: Pen & Sword Books Ltd. www.pen-and-sword.co.uk

The second release this month in the same 'Hitler's War Machine' series follows up with the latter part of the war, starting in 1943. This period of the war was quite different to the early days of the war and saw numerous new variants and types of Panzer rushed into service as the German Army sought to dominate the battlefield. This book, like the previous one, draws heavily on primary sources and contemporary documents to

provide a new insight into the true nature of Hitler's Wehrmacht. One highly effective new breed of weapon was the self-propelled artillery vehicles of the Panzer Divisions, which are discussed in some detail along with the different battles and campaigns of the latter half of WW2, such as Kursk. Like the first volume, this book features numerous photos and illustrations. Available from all good book stores.



The German 3rd Panzer Division in World War Two

Established in 1935, the 3rd Panzer Division participated in the 1939 invasion of Poland and went on to give great service throughout the Second World War. This new book from Stackpole Books is a fully illustrated account of the German 3rd Panzer Division from 1943 and throughout the war. The unit, which had nearly fifty Knight's Cross winners by the end of the war, fought in some of the fiercest battles of the war, including the famous

Battle of Kursk. The book is based on the recollections of the veterans themselves, supplemented by the Division's own daily logs and features the personal photos of the men showing the men and machines that served with the 3rd Panzer Division. The 320-page hardback book includes 150 B&W photos plus maps and listings of the numerous gallantry awards afforded to members of the unit. Available from all good book stores.

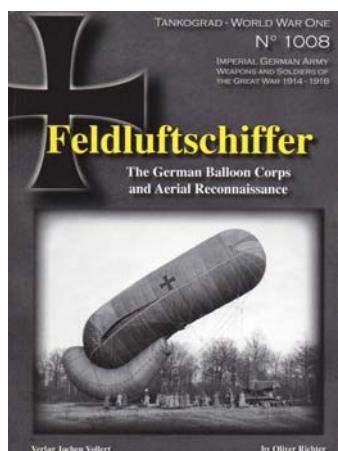
Title: Armored Bears Vol.2
By: 3rd Panzer Div Veterans
ISBN: 9780811711715
Price: £20.00
Format: Hardback
Available From: Casemate UK Ltd. www.casematepublishing.co.uk

The German Balloon Corps and Aerial Reconnaissance in WW1

Title: Feldluftschiffer
By: Oliver Richter & Jochen Vollert
ISBN: N/A
Price: £21.99
Format: Softback
Available From: Bookworld Wholesale Ltd. www.bookworldws.co.uk

The latest addition to the growing Tankograd World War One series of books is this new title looking at the German Balloon Corps and Aerial Reconnaissance units of the Great War, and is all the more appropriate given the forthcoming 100th Anniversary of the start of WW1 next year. The 96-page softback book is packed with black and white archive images of the men and the equipment both on the ground and in the air.

While it may not be a book specifically aimed at vehicle enthusiasts, it is nonetheless a fascinating insight into these units, and some photos within the book feature a variety of vehicles and ground equipment such as anti-aircraft (and balloon) artillery. The subject may not appeal to everyone, but it is a most interesting subject and if you see the book I would suggest taking a look, you may find that it's right up your street!



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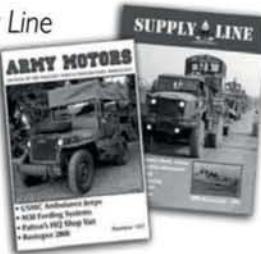
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General contact Steve Pepper: Tel: 07711430472

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www.thevictoryshow.co.uk

Saturday 7 September 2013:

Peopleton Autumn Show: held at Peopleton Village Playing Fields, Peopleton, Worcs. Featuring Classic Cars, Military Vehicles, stalls, food and entertainment throughout the day. Open from 12.00 noon till 6.00pm. For further details call John Sargeant: Tel: 01905 840155 sarg-37@outlook.com

Saturday 14 Sunday 15 September 2013:

Birkenhead Park Festival of Transport Show: now in its sixth year and held at the popular venue of Birkenhead Park, on the Wirral. Featuring traction engines, classic cars, classic motorbikes, historic fire engines and military vehicles plus living history groups, radio control boats, cars and tanks. BBMF Flypast (subject to operational circumstances). A great show with something for all the family. For further details check out the show website at: www.bheadtransportfest.com

Sunday 15 September 2013:

Fun Day & Reunion: held at North Weald Airfield Museum located in North Weald village, Essex, CM16 6AA. We are holding a fun day and reunion at the museum, the reunion is to bring together anyone who served at North Weald airfield whilst it was a RAF and military base throughout its history, and anyone with any connection to the airfield. There will be static exhibitions and displays from

SEPTEMBER 2013

local organisations and groups, including classic cars, vintage motorcycles and military re-enactors. Admission to the museum on the day is free of charge and we will also be running a minibus doing guided tours around the airfield. Stalls and displays can be booked on: Tel: 07783 566 767 or email office@northwealdairfieldmuseum.com www.northwealdairfieldmuseum.com

Saturday 21 Sunday 22 September 2013:

Bagillt Military Vehicle Show: a new late summer show on the Bettisfield Beacon Headland overlooking the Dee estuary, CH6 6HE. Vehicles limited to a 9ft 8" height restriction. For further details contact Jayne on: Tel: 01352 713560 jayneatvalkor@aol.com

Saturday 21 Sunday 22 September 2013:

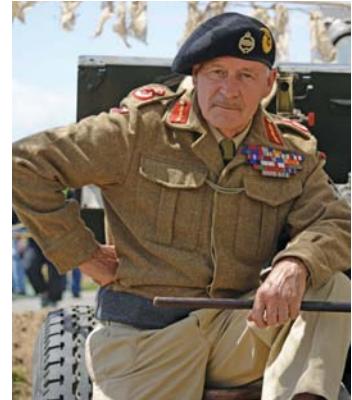
Salute to the '40s: held at The Historic Dockyard Chatham. A record number of re-enactors and the best in 1940s' traders, to help you get a truly authentic look, are booked to attend. Come and join them! Tickets are now on sale with discounts for advanced purchases and Dockyard 12 month ticket holders. Two-day tickets are also available. For further details and to buy tickets for the show in advance go to: www.thedockyard.co.uk/salutetothef40s or call the Ticket Hotline on: Tel: 01634 823826.



SEPTEMBER 2013

Sunday 29 September 2013:

Stoneleigh Mini Militaria 2013: Blackdown Buildings, The Exhibition Centre, Stoneleigh Park, Coventry, Warks. CV8 2LZ. Round off the show season with this new event and grab those bargains ready for the winter rebuilds. Contact Amanda on: Tel: 01743 762266 amanda@jeepparts.co.uk www.militaryconvention.com



OCTOBER 2013

Saturday 5 Sunday 6 October 2013:

Holme 1940's Weekend: held in association with Holmewood Hall and Holme Village. Located near Peterborough, PE7 3PA. Featuring tank rides, vintage vehicles, vintage ploughing, stalls and displays. Re-enactors welcome. For details call: Tel: 07887 817031 chriscardell@googlemail.com www.holmewoodhall.co.uk

Sunday 6 October 2013:

Hack Green Secret Nuclear Bunker Rally: French Lane, Nantwich, Cheshire, CW5 8BL. Come along and buy (or sell) your items of militaria and at the same time take in the fascinating Hack Green Secret Nuclear Bunker museum while you're there. For further details call the organiser Rod: Tel: 01270 623353 coldwar@hackgreen.co.uk

Friday 11 to Sunday 13 October 2013:

Wartime Weekend: held in Pickering, North Yorkshire and featuring steam trains, trade stands and re-enactors. A great day out. For further details about the show visit the website at: www.nrmr.co.uk details about the trading area at: www.jeepworld.co.uk/pickeringwartimeweekend.htm

NOVEMBER 2013

Sunday 3 November 2013:

Northern Military Expo: popular indoor show held at the Newark Country Show Ground, Notts, 2 minutes off the A1M (NG24 2NY). For details contact Mark Askew on: Tel: 01302 739000 or check out the website at: www.northernmilitaryexpo.co.uk

NOVEMBER 2013

Sunday 17 November 2013: Malvern Militaria Fair:

large, indoor militaria event held at the Three Counties Showground, Wye Hall, Malvern, Worcs, WR13 6NW.
For details contact Amanda at:
Tel: 01743 762266
amanda@jeeparts.co.uk
www.militaryconvention.com

Sunday 17 November 2013: Military Vehicles Day:

Over 80 vehicles are expected for our annual Military Vehicle Day. As well as the spectacular displays in the Paddock and around the site, there will be the chance to see some of these machines put through their paces as they tackle the off-road circuit at Mercedes-Benz World. Brooklands Museum, Brooklands Road, Weybridge, KT13 0QN.
Tel: 01932 857381
www.brooklandsmuseum.com

DECEMBER 2013

Sunday 15 December 2013: Bromsgrove, Militaria, Medal & Arms Collectors Fair:
held at the Spadesbourne Suite, The Council House, Burcot Lane, Bromsgrove, Worcs, B60 1AA. For further information and dealers booking forms contact James Brown at:
Tel: 07980 608211
fairs@RZMilitaria.com
www.RZMilitaria.com



JANUARY 2014

Sunday 5th January 2014: Aviation, Airline & Military Collectors Fair: Doors open at 10.30am, featuring Aviation & Military Collectables, Book and Model Collectors, Airline Collectables, Uniform, Plastic kits, held at Croydon Airport Hotel, A.23, Purley Way, Croydon Surrey, CR9 4LT. Free car parking. For further details contact Acebell Aviation on:
Tel: 01737 822200 or
Tel: 07860762277
acebellaviation@aol.com



APRIL 2014

Saturday 12 to Monday 21 April 2014: Sandstone Estates Easter Festival: held at the Sandstone Heritage Trust, Eastern Free State, South Africa. Annual open festival featuring the many military vehicles, agricultural equipment, vintage cars and narrow gauge steam railway owned by the Sandstone Heritage Trust. The Sandstone Heritage Trust works closely with South Africa's Armour Museum and boasts an impressive and varied collection of military equipment, from a Sherman tank to modern day South African Defence Force armoured vehicles. (For further details of the show see the report on this year's show in this issue) For more information on the show check out the website at: www.sandstone-estates.com

MAY 2014

Saturday 17 May 2014: 1940's Relived:

Discover period civilian and military vehicles on parade and various groups of re-enactors, representing from the Home to the Eastern fronts. Live 1940s music and dance, vintage trade stalls and more. Brooklands Museum, Brooklands Road, Weybridge, KT13 0QN.
Tel: 01932 857381
www.brooklandsmuseum.com events

NOVEMBER 2014

Sunday 16 November 2014: Military Vehicles Day:

Over 80 vehicles are expected for our annual Military Vehicle Day. As well as the spectacular displays in the Paddock and around the site, there will be the chance to see some of these machines put through their paces as they tackle the off-road circuit at Mercedes-Benz World. Brooklands Museum, Brooklands Road, Weybridge, KT13 0QN.

Tel: 01932 857381
www.brooklandsmuseum.com

Are you a show organiser? Don't delay, and email your show & event details direct to the Editor at: or if you prefer you can post them to the Editorial Office - details can be found on page 3

ian.young@keypublishing.com

If travelling long distances to events we would advise people to check for cancellations before leaving home, MMI cannot be held responsible for any errors, omissions or cancellations. Submissions for Mission Briefing should be sent at least two months prior to the event and we would also ask that event organisers notify us of any changes as soon as possible.

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On Sale 3rd October



DENNIS RESTORATION

Tim Gosling describes the restoration of his World War One Dennis truck

JEEP REBUILD Pt.3

Progress continues apace with the rebuilding of a wartime Jeep

WAR & PEACE REVIVAL

All the action in our first report from this year's major new military show

TANKFEST 2013

The best of the heavy metal at the Tank Museum's premier event



Content may be subject to change



IRISH FORDS

Colin Stone reveals the early Ford armoured cars of the Irish Army



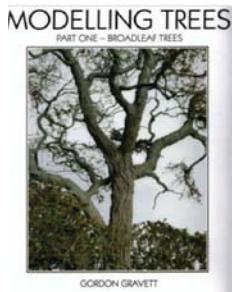
TWO OF A KIND

Gordon Arthur looks at Singapore's Terrex and Taiwan's CM32

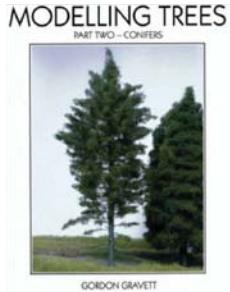


LECLERC ARV

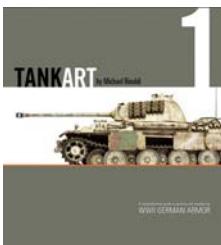
Eric Cunat profiles the Leclerc Armoured Recovery Vehicle



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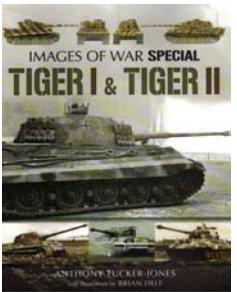


TANKART Volume 2 WWII Allied Armor by Radek Pituch

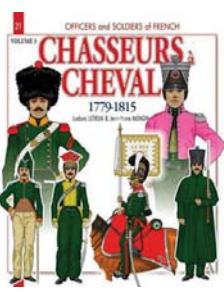
There are 5 models featured inside, 4 dedicated technique chapters, plus a special bonus figure modelling chapter. Over 200 colour photos. reproduced in a large format. £20.99



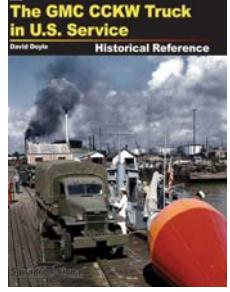
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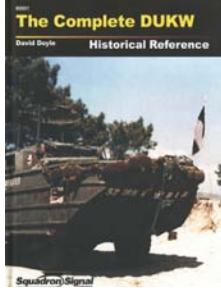
Images of War Special Tiger I & II. Anthony Tucker-Jones's expert account of these remarkable fighting vehicles is accompanied by a series of colour plates showing the main variants of the designs and the common ancillary equipment and unit markings. 176 pages. £14.99



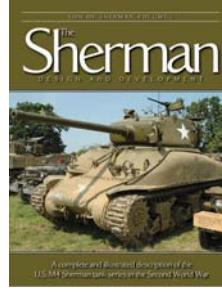
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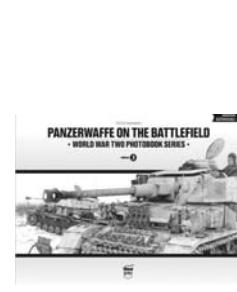
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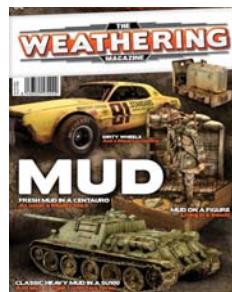
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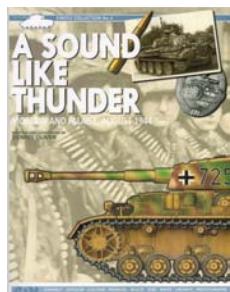
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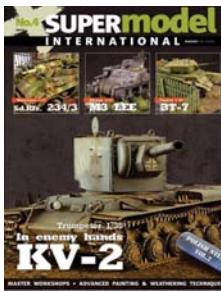
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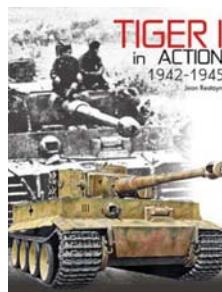
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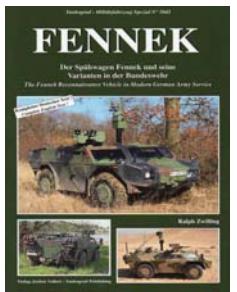
SUPERmodel International No.4. The Secret Garden Sd.Kfz. 234/3 - Hasegawa 1/72 In enemy hands KV-2 - Trumpeter 1/35 BT-7 - Tamiya 1/35 On a Green Island - M3 Lee - Mirage 1/72. Paperback, 78 pages, printed in full colour. £10.99



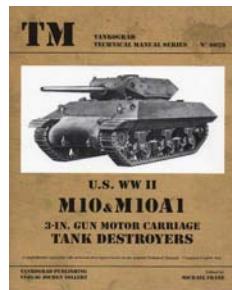
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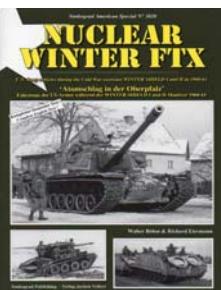
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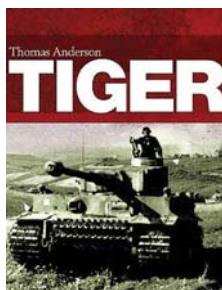
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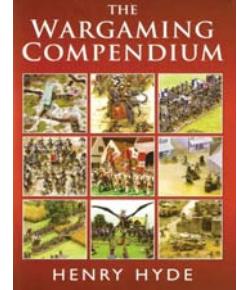
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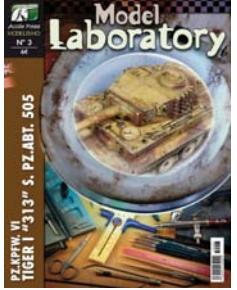
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Model Laboratory Volume 3 Tiger 1. In this third issue we look at Tiger I Step by step, explaining various techniques such as chipping, dusting, painting tracks, oils etc. 32 Pages, A4, colour profiles, models gallery. Full Colour. £6.99.



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October 14 & 15, 2013 in Fairfield, Maine USA

Our March 2013 auction was another resounding success. At approximately \$13.5 Million it is the third highest grossing firearms auction in history (the first and second highest grossing sales were conducted by our firm in 2012). Our Fall sale, however, should be a truly historic auction for the record books. This sale will include Session 1 of the Geoffery Sturgess collection of self-loading pistols. The Sturgess collection is believed to be the finest and most comprehensive collection of its type currently in private hands. Approx. 50 years in the making, it is the subject of the recently published three volume treatise, "The Borchardt & Luger Automatic Pistols". This sale will include a spectacular array of best quality sporting arms, the Joe Schroeder collection of Bergmann and Mauser pistols, the Woody Frey collection of rare Winchesters and Kentucky rifles, the Class III collection of Carl "Bill" Morrison (approximately 70 years in the making from Maine's oldest gunsmith), a superb offering of 20th century military, the Marlan Polhemus collection of Smith & Wessons, rare deringers, important Civil War, truly outstanding Colts including Sess. 1 of the extraordinary Michael Leff collection of rare cased Colts, and much, much more.

We are the world's leading auctioneers of rare, high-grade, quality firearms. We do not sell the greatest number of firearms in a year, we sell the greatest number of expensive firearms in a year. 0% Seller's Commission on Expensive Items.

Recently Consigned to our Upcoming Fall Auction



Rare WW II Era German "Kubelwagen" captured from Rommel's Afrika Korps in Egypt 1941. It was this very Kubelwagen that was used by U.S. Intelligence to develop Tech Manual E9-803. Fully documented and remarkably preserved!

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(left) The finest private collection of semi-automatics ever assembled. Sess. 1 will include the earliest known Loewe Borchardt C93 prototype, serial no 6, cased with full accessories -Superb! ; Original DWM Luger 1899/00 from UK Trials ; 1900 Chilean Prototype ; Near mint presentation Mauser C96, gold & ivory, Spectacular! ; Mauser C98 semi-auto rifle for GPK Small Caliber Trials of 1898- 1 of only 4 known; 1903/4 Transitional French trials prototype 90A Luger. This is only a tiny sampling!!!



Ex. rare genuine SS Nazi officer's hats incl. ultra rare white version ID'd to Emil Bihler of the Allgemeine SS, later of the Waffen SS Handschar Division