Pouring the molten metal

Cast away

In our first special casting article for this issue **Keith Nairn-Munro** talks us through how to make multiple Napoleonic cannon for your dioramas, saving you a lot of money in the process

During the epoch of Napoleon, it was said that he loved his guns so much that he called them his daughters, certainly he had plenty of them. For the dedicated Napoleonic enthusiast this can cause a little bit of a problem, as to replicate the number of guns used in this era in any battle scene can be quite an expensive business.

I therefore thought we might look at a cost effective and fun way of producing 'la belle dames' of the Grande Armee.

So what is this magic formula? It is to cast your own guns. To do this, I am going to use a commercially available mould from Prince August. The gun produced is more than adequate, however I will show you how to augment it to achieve additional detail.

The other benefit of casting your own guns is, if you want to create dioramas where the guns are broken or destroyed, you are not going to decimate a costly commercial offering to achieve this purpose.

If you are thinking at this point, 'That's fine but how am I going to crew all these guns'? There are a number of ways. You can cast your own crew from moulds by the same maker, pick different castings from a number of commercial producers or alternatively there are plastic figures on the market you can use.

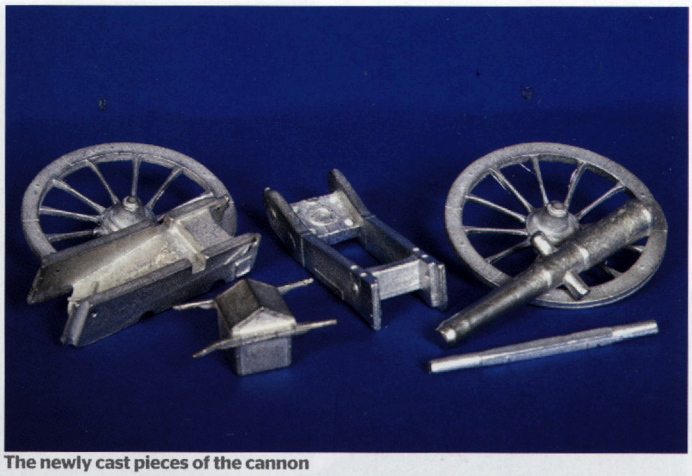
When initiating moulding your own figures, it is worth buying a starter kit. This will consist of a casting ladle, some clamps, release powder and support boards and can be sourced from Prince August or in a good model shop. You will also need casting metal which normally comes in a pack of three bars. However, if like me you have amassed bases that have not been used and trimmed offcuts etc. these can be used as an alternative.

Starter Kit for Casting

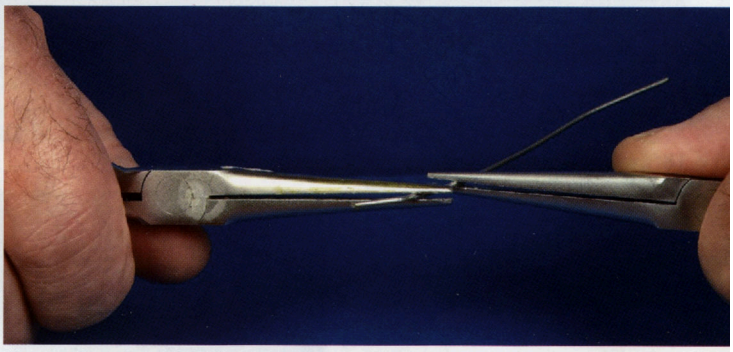
This next piece in the article is the most IMPORTANT part of all as it relates to your SAFETY! You are going to be dealing with MOLTEN metal, so I cannot emphasise how important the next few lines are as I do not want you to hurt yourself or cause any damage.

Wherever you decide to cast your figures, make sure you have plenty of room in a well ventilated area. Molten metal can spill or splash so ensure the space in which you are working is protected from accidental damage. You should always wear safety glasses and heavy gardening gloves when melting the metal and take care never to rush the process.

A casting of the wheel and axle still in the mould



The newly cast pieces of the cannon



Shaping the wire with long nosed pliers

The ideal heating element would be a hot plate but failing that, a camping stove is the next best option. If you are using the second method, it is a two person job as you will be dealing with naked flames and hot metal and I would recommend this is not done indoors.

The first aspect of preparation before melting any metal is to prepare the mould. The inside of the mould should be clean and dry prior to being rubbed with release agent/talcum powder. It is essential to ensure the powder gets into all the nooks and crannies as this aids the flow of the metal through the mould and allows air to be easily expelled.

This is particularly important for small details in the casting in our case the spokes on the wheels of the cannon. I also always keep my moulds in the airing cupboard prior to use as this reduces the risk of any dampness and softens the mould which assists the flow of the metal. However the optimal temperature at which moulds work best is about 30 degrees Celsius.

When the release agent has been applied, gently bang the two moulds together to eradicate the excess agent and then place the two sections of the mould together. Locate the support boards on the mould and lock the assembly together with clamps. This prevents any metal seeping out of the mould and will give you a crisp cast. I always place a metal baking tray underneath the mould so if there is any spillage, it does not cause any damage.

You are now ready to place your metal in the casting ladle prior to heating it. If you are using a camping gas stove with the help of an assistant, before you fire it up do a dummy run so they are totally conversant with your expectations and likely actions prior to melting the metal. They should also be wearing safety equipment.

When you have melted the metal, place a used matchstick held by a pair of long-nosed pliers in the metal. If the wood browns and starts to smoke, the temperature is correct for casting.

Pour the metal right to the top of the mould and once this is done, give it a couple of gentle taps on a hard surface to ensure the metal has flowed to all the areas of the mould. I always have an old tin lid on which to rest the ladle prior to tapping the mould. While you have been involved in these procedures, if you have been using a gas stove, your assistant will have been able to safely extinguish the flame.

> “Once you have finished casting always wash the mould in a mild solution of soapy water and rinse carefully”

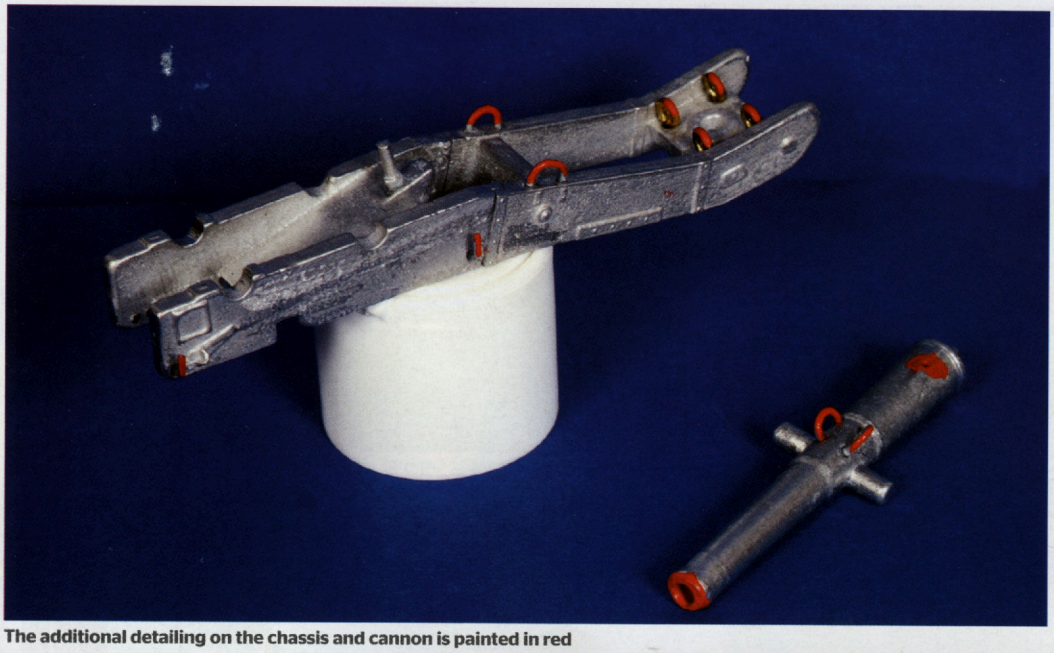
Wait approximately five minutes before removing the casting from the mould and keep your gloves on, as although t he casting will be solid, the metal retains its heat for quite a while. Once cool, you can clip off the excess metal.

I have found on occasions the interior of the hub of the wheel may be slightly obstructed and requires drilling out. Before you do this, put an unattached drill bit into an unobstructed hub so you can gauge the depth you will need to drill. Mark the required depth on the bit with a piece of tape as this will prevent you drilling right through the hub and having to recast.

Once you have finished casting, always wash the mould in a mild solution of soapy water and rinse carefully to clean any debris left from the moulding process.

Removal of the casting lines on the gun chassis is a little tricky, so I used a grinding attachment with a hobby drill rather than a file (if you do not have this type of kit, keep a lookout in your local Lidl store as recently I bought a Mini Tool Set for £5.99 and they also had hobby knives, Superglue and a very reasonably priced hobby drill). A file was used for the wheels etc.

As I mentioned earlier, the French gun is a very good replica, however some additional detailing can enhance it and →



The additional detailing on the chassis and cannon is painted in red

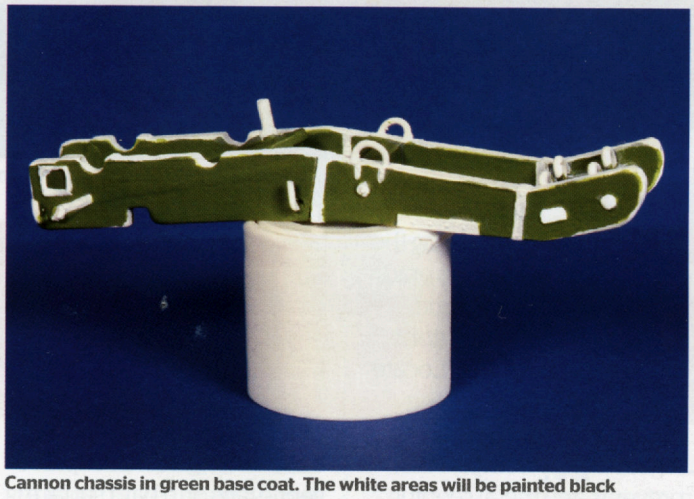
this mainly consists of only shaping wire, which will be done prior to priming. The great thing about this model is that the holes to be drilled for the wire are already indicated on the chassis and cannon and I used a 1mm drill bit for this purpose.

On the backplate of the chassis, there are four holes. Once drilled out I used brass eye screws with the screw end cut to size to create O rings. In the real life, the crew placed wooden poles in them when they needed to manoeuvre the cannon.

With the drilling all done, the chassis can be glued together. Once set, file the joints to ensure a smooth surface on the chassis rails. The next job is to file down the mouth of the cannon to establish a flat surface and to give it a realistic feel, we need to create a hole.

Commence this process by locking the cannon vertically in a vice that has rubber grippers and drill with a 1mm drill bit centralising it in the middle of the flat surface. Enlarge it with a 1.5mm drill bit, then further enlarge the hole with a 2mm bit and complete the job with a 2.5mm drill bit.

Using the 1mm bit, you can also drill a vent hole. To ensure the hole is lined up correctly, use the mark at the rear top of the cannon as your guide. To prevent the drill slipping on the curved surface, place on the cannon a piece of masking or magic tape and mark with a pencil your drilling point. Once again, it is important that you lock the cannon in a vice to prevent it moving during the drilling process.



Cannon chassis in green base coat. The white areas will be painted black

I used thick fuse wire for the detailing, shaping it with two pairs of long-nosed pliers. The finished pieces were then inserted on the top rails of the chassis, at the front of the chassis and on top of the cannon itself.

The O rings can now be inserted and the adjusting screw for the cannon can be located making sure you angle it so the protrusion at the rear of the cannon rests on it.

I have marked all the details in red in one of the illustrations to show the shape of the wire additions and where they are located. At this point I chose not to glue on the axle as it will get in the way when you paint and detail the chassis.

We are now ready to prime and undercoat and I selected Humbrol 80 Grass Green as the main colour for the chassis and wheels. One of the reasons I decided upon this colour was that if you have a number of cannons to paint, it comes in an aerosol spray as well as a pot. The actual cannon will be done in brass, having first undercoated in matte black.

The detailing on the cannon chassis is done in black and will include the chassis rails, O rings and the features on the side of the chassis. The hubs on the wheels are also painted black whilst the metal rims on the wheels are done in Humbrol Metallic Aluminium 56. If you are not spray painting the wheels, I would recommend you do the rims first.

The axle, using the guiding points on the casting for positioning, can now be attached to the chassis. After ensuring all glue was dry I varnished the cannon chassis, axle, wheels, cannon and ammunition box with Humbrol 35 Gloss Varnish.

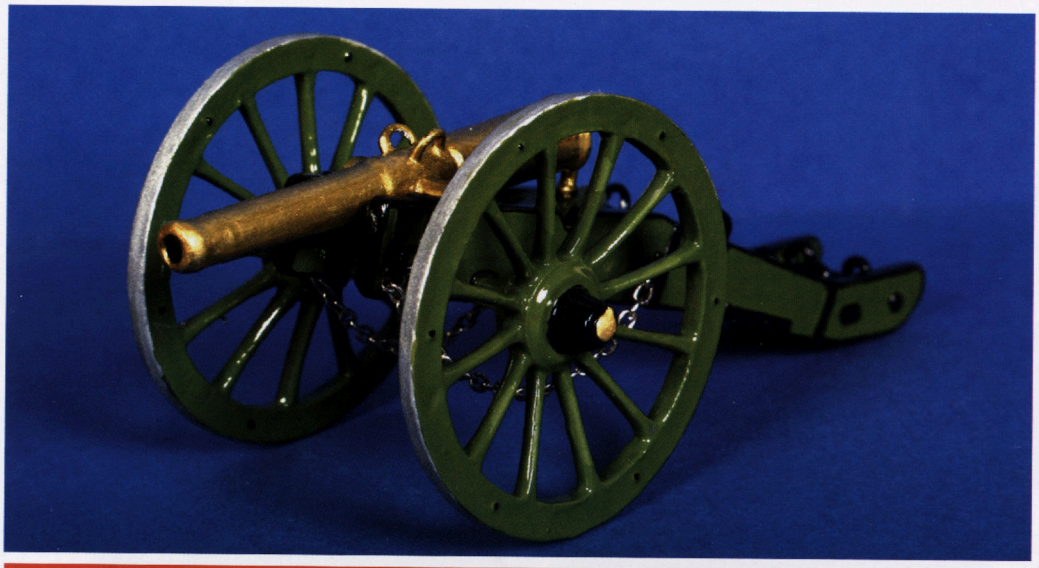
Once the varnish is dry the wheels were then located on the axle, taking time to check the alignment of both wheels before the glue set. The cannon was then glued in place.

My final addition to the cannon was to add a 5cm length of chain on either side of the chassis to hang on the wire hooks that had been shaped earlier. An approximate metre length of this chain can be bought in a good model shop and is also ideal for hitching horses to wagons.

I decided to crew it with home cast figures as their bicorn headgear really makes them an unusual set. The castings were crisp and the mould lines were easy to file.

When painting them, I would suggest you paint in

The chassis with the black detail and axle glued in place



LEFT Front of the finished cannon with the addition of chains
BELOW The finished cannon viewed from the back

> "My final addition to the cannon was to add a 5cm length of chain on either side of the chassis to hang on the wire hooks that had been shaped earlier"

LEFT The finished crew showing the front and back of the uniform

the red detail of the uniform first before doing the main colour of blue. This is particularly pertinent on the edge of the front of the uniform, the collar and the lines enclosing the buttons on the back as they can be very easily lost in the darkness of the blue colour. I also used the option of brass buttons on the black gaiters, just to give an additional brightness to the lower part of the uniform.

I think this is a very good cannon and it was really fun to mould the castings. If you need a large quantity of good quality cannons, then self-casting has real benefits. The same applies to figures, particularly if you wish to populate a fort or a large parade ground, the only caveat being that you are restricted regarding the number of poses.

The simplicity of the figures affords an ease of painting and of course if the figures get damaged or broken, you can just make some more. These two aspects make this a very attractive option if you have children who would like to take part in the hobby.

Finally the Prince August Company also supply castings, so before committing to a mould you can buy some figures to check that they will fit with what you had in mind.

So cast away and I hope you enjoy it as much as I did! END

Text and painting by Keith Nairn-Munro. Photographs by Evelyn Nairn-Munro and Peter Fallon.

The finished cannon with home cast crew