<page>016r</page>

<image>http://gallica.bnf.fr/ark:/12148/btv1b10500001g/f37.image</image>

<div>  
<id>p016r\_a1</id>  
<head>Melting <m>soft iron</m></head>

<ab>It is a common opinion that once <m>iron</m> has been melted, it cannot be remelted because they only heat it in small <tl>forge</tl>s, in which it only catches fire. <pro>Alchemists</pro> are confident they can melt it with <m>realgar</m>, <m>lead</m> or <m>orpiment</m>. But without all that, some have found a way to melt not only brittle <m>iron</m>, like that used for <m>iron</m> pots, but also soft <m>iron</m> such as pig or ingot <m>iron</m>, which are the most difficult ones <x>to work with</x>. For this result they make a <tl>furnace</tl> that is one <ms><fr>pan</fr></ms> and a half wide and two <ms><fr>pan</fr></ms>s deep, and the <fr>tuelle</fr>, which is the barrel marked A where the <tl>bellows' pipes</tl> fit, has to be placed midway through the depth of the furnace so that there is one <ms><fr>pan</fr></ms> of the <tl>furnace</tl> opening on the <fr>tuelle</fr> and one <ms><fr>pan</fr></ms> under it.</ab>

<ab>  
<margin>left-top</margin>  
Each square <ms><fr>pan</fr></ms> of the <tl>furnace</tl>'s opening can hold one <ms>quintal and a half</ms>, and the round <tl>furnace</tl> <ms><fr>pan</fr></ms> can hold two <ms>quintals</ms>.</ab>

<figure>

<id>fig\_p016r\_1</id>

<margin>left-middle</margin>

<link><https://drive.google.com/open?id=0B9-oNrvWdlO5aUw0eThJNEVTelk></link>

<!--José Beltrán Coello: Drawn before the writing of at least the second half of the first paragraph-->

</figure>

<ab>  
<margin>right-middle</margin>  
The <pro><m>iron</m> smiths</pro>, to make the <m>iron</m> run, at the opening of the <tl>forge</tl>, place two or three handfuls of <m><pa>wallwort</pa></m> <sup>in the direction</sup> they want to make the <m>cast iron</m> run, and that makes the <m>iron</m> wonderfully ductile and flowy.</ab>

<ab>It is necessary that the <fr>tuelle</fr> is inserted <sup>through</sup> to the middle of the <tl>furnace</tl> opening, which is a main clue for the secret because the wind will hit the edge and the wall, which makes up the center of the <tl>furnace</tl> and in that manner, it spreads equally everywhere, as well as above, like flames in a reverberatory oven, and thus heats much more; because if the <env>wind</env> hits the melted or ready to be melted matter perpendicularly, it would cool it down and it would stop it from running and melting. It is also necessary for the <tl>bellows</tl> to be activated by jumps and by the <m>water</m> stream as <sup>happens</sup> at <tl>forges</tl>, because in this way, <tl>bellows</tl> are activated with great precision and great speed, which the strength of <pro>workers</pro> could not duplicate. As you can see, the wall is thus raised up and the <tl>furnace</tl> <sup>is laid</sup> on the ground, at the edge of which you dig a pit, like at other <tl>forges</tl>. In order to put the moulds you want to cast inside, and for this purpose, you unstop the opening that you made at the bottom of the <tl>furnace</tl> to allow the melted matter to flow. You will be able to melt two <ms>quintals</ms> of <m>iron</m> each time and, in order to do this, you will choose the biggest <m>charcoal</m> you will find and put a measure of it at the bottom on the surface area of the furnace and pile up from the bottom to the top of the wall, in the shape of <sup>an upside down V</sup>.</ab>

<ab>  
<margin>left-bottom</margin>  
Some make a mould of the same size as the piece, then immerse it, then beat a soft <m>iron</m> piece cut to size, and when this bit is red hot, they beat it into the mould and round it out with a large <tl>file</tl>. These bullets are thought to be stronger than the melted ones which, being made of hard <m>iron</m>, are more prone to break.</ab>

<cont/>

</div>