<page>016r</page>

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

<div>  
<id>p016r\_1</id>  
<head>Founding of <m><fr>doux</fr> iron</m></head>

<ab>Most <pro>people</pro> consider that <m>iron</m>, once melted, cannot be melted again because they only heat it in <tl>small forges</tl>, in which it only becomes red-hot. <pro>Alchemists</pro> undertake to melt it with <m>realgar</m> or <m>lead</m> or <m>mixed orpiment</m>. But without all that, some have found a way to <del>the</del> melt not only <m>brittle iron</m>, such as the kind used for <tl><m>iron</m> pots</tl>, but also <m><fr>douls</fr> iron</m> such as <del><fr>d</fr></del> that of pigs &amp; ingots, which is the most difficult kind. And to this effect they make a <tl>furnace</tl> in this manner which has a width of one <ms><fr>pan</fr> &amp; a half</ms> &amp; <del>one <ms><fr>pan</fr> &amp; a half </ms>of</del> a depth of two <ms><fr>pans</fr></ms>. And the <fr>tuelle</fr>, which is the barrel <del>through</del> marked A through which the bellows' pipes enter, has to be placed in the middle of the depth of the <tl>furnace</tl> such that there is one <ms><fr>pan</fr></ms> of the mouth of the <tl>furnace</tl> above the <fr>tuelle</fr> &amp; one <ms><fr>pan</fr></ms> underneath.</ab>

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Each <ms><fr>pan</fr></ms> of the mouth of the <tl>square furnace</tl> contains <ms>one &amp; a half quintal</ms>, &amp; the <ms><fr>pan</fr></ms> of the <tl>round furnace</tl> holds two <ms>quintals</ms>.</ab>

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<figure>

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

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<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>  
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The <pro>miners</pro>, to make the <m>iron</m> run, put at the mouth of the melt, two or three <ms><bp>handfuls</bp></ms> of <m><pa>wallwort</pa></m> when they want to make the <m>melt</m> run, and this renders the <m>iron</m> wonderfully ductile and flowing.</ab>

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<ab>It is also necessary that the <fr>tuelle</fr> enters through to the middle of the mouth of the<tl>furnace</tl>, which is a principal part of the secret because the wind will hit the edge &amp; the wall which makes up the belly of the <tl>furnace</tl> &amp; by such means, it spreads equally everywhere &amp; above, like the flame in a <tl>reverberatory furnace</tl>, &amp; by such means heats much more; for if the wind were to hit directly from above, the substance which is melted or ready to be melted, it would cool it down &amp; prevent it from running &amp; melting. It is also necessary for the bellows to be driven by the falling &amp; running of <m>water</m> as in <tl>forges</tl>, because in this manner, the bellows run with measure &amp; compass &amp; with great speed, which the strength of <pro>workers</pro> could <del>d</del> not do. Therefore one raises the wall as you see &amp; the <tl>furnace</tl> on the surface of the ground at the edge of which you make a channel as with other founding, to put the <tl>molds</tl> of that which you want to cast &amp; to do this, you unstop the opening that you had made at the bottom of the <tl>furnace</tl> to make the melted substance run. You will be able to melt two <ms>quintals</ms> of <m>iron</m> each time and to do this, you will choose the <tl><ms>biggest</ms> charcoal</tl> you can find &amp; put a load of it at the bottom, on the plane and surface of the <tl>furnace</tl> &amp; with the bottom piling up <del>as if</del> to a point, up to the top of the wall

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Some make a mould of the <tl>calibre</tl> of the piece, &amp; temper it, then beat a <m><fr>doulx </fr>iron</m> piece cut to size, &amp; when this piece is very red, they beat it into the <tl>mold</tl> &amp; round it off with a <tl>large file</tl>, considering these balls to be stronger than the melted ones which, being brittle, are more subject to breaking.</ab>

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