

are other engines employed in mining tobacco, hoisting, driving corn mills and wood-working machines, pumping water, &c.; but by far the most important application that has been made in that island, of the caloric engine, is to the grinding of sugar cane on the plantations.

The introduction of such a motor was one of the prime necessities of Cuba. The old ox mills were utterly insufficient for the large modern sugar estates; and besides, their labour was very exhausting and costly. It required a great number of men and oxen, and the juice of the cane was but imperfectly expressed, the best part being thrown away with the *bagasse*. The steam engine obviated these difficulties, but it created others of great magnitude. The Island being destitute of coal beds, wood is used to supply the great consumption of fuel required by the steam-engine, the consequence of which has been that in less than twenty years immense forests of the finest kinds of timber have been completely destroyed. Besides, on account of the great scarcity of water in many parts of the Island, it is enormously expensive to procure the quantity necessary for feeding the steam-boilers. On some plantations the cost of water for the purpose amounts to thousands of dollars annually. The expense for engineers is also great, as they all have to be imported from some foreign country.

The advantage to be derived from the application of Ericsson's engine to the grinding of sugar canes were first appreciated by Messrs. Anguera and Martinex, wealthy merchants and planters at Havana, persons endowed with enlarged views and a progressive turn of mind. Desirous of doing away with the old ox-mill in the *ingenio*, "*La Sierra*," a beautiful sugar plantation situate near the port of Mariel, and at the same time unwilling to suffer the ruinous wasting, and many dangers and inconveniences of the steam engine—one of which in Cuba is the unavoidable necessity of an engineer—they determined to try the Caloric Engine. Accordingly they ordered the

constru  
of corre  
this size  
(the lar  
impossi  
crop.  
this fac  
engine,  
with a  
diately.  
of this  
was us  
lathes,  
prevail  
to allo  
sugar c  
kind of  
apprise  
of suga  
in this  
diamet  
works,  
the pr  
with t  
taken  
facility  
the ca  
Havan  
made,  
the sa  
steam  
there  
to the  
whole