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## **National Cipher Challenge 2009, part 4A**

**November 1st 1834**

My dear Professor Babbage,  
Charlotte's sister Emily retrieved the enclosed note from the fireplace at Lord Pennylaine's London apartments last evening. I have courted her attention assiduously and recruited her fully to our cause. This places her in great danger, and I have severe doubts as to whether we should ask her to continue taking risks on our behalf. Indeed if it were not for Emily's duty to her King and country, and the foul threat posed by our French opponents, I am certain that I would not ask her to take such risks.

I fear that we are all required to place the interests of others above our own. For my own part, the frustrating delays in tackling the decryption of my late Father's enigma pain me deeply, but our work on the Analytic Engine must take priority, as must our efforts to thwart our opponents.

I have taken some initial steps in attempting to decypher the message intercepted by brave Charlotte, and must confess to some confusion. The distribution of characters within it matches that of ordinary English text so very closely that I am of a mind to assume that no substitutions have been made, and yet the text is clearly encrypted, perhaps by some ingenious derangement. With your own interest in anagrams I suspect that it will yield its secrets to you swiftly, and, if you will allow it, I will leave that task to you, as I turn my attention to the Enigma puzzle, and continue my notes on the design of the Analytic Engine.

Affectionately yours,

Ada Lovelace.

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## **National Cipher Challenge 2009, part 4B**

October 17<sup>th</sup> 1834

My dear Monhier, I decided to take your advice and have utilised a keyword cypher to foil any who might seek to interfere with our venture. It took some effort and many drafts to implement it, and I hope my efforts are satisfactory. At first I was unsure what sort of keyword cypher you might be expecting, and I did wonder about using the military substitution style (which you may wish to adopt in your reply), but the cypher clerks tell me that anagrams are considerably more reliable and so I have taken the liberty of implementing one here. I hope it will suffice.

You asked for intelligence concerning the Government's relations with France. My own view is that it is showing an unseemly delight in the decision of the United States to seek reparations from your country. However, you may find it valuable to know that Vice President van Buren petitioned President Jackson to allow your government more time to raise the necessary appropriation. What is more, in so doing he bypassed the Secretary of State, who is, I understand, in a towering rage at this treatment. I think it would take no great effort by your American agents to seduce him into resignation, and you may strengthen the French position greatly in the American administration if you could accomplish this small undertaking. I trust that this information goes some small way to demonstrate my commitment to our cooperation.

I too would feel more comfortable if you could offer a more substantial demonstration of your own commitment to our undertaking. In London almost any commercial paper is negotiable and any currency can be traded, I trust that you will be able to find some way to demonstrate your allegiance.

As a novice in the art of secure communication I am reluctant to advise you, however, may I take the liberty of suggesting that we might use a bi-literarie cypher in future correspondence? I am much taken by the similarity between this method and ideas proposed by Babbage's friend Wheatstone to simplify telegraphic transmissions.