

The Ultra Code - Alan Turing script

Letter 2

Dear Mr. Taylor,

Good work on decoding that last message. We're impressed with your work so far and it's been awfully nice having you onboard. I see you're becoming familiar with the equipment we have here at Bletchley. We've certainly come a long way since we first received that antiquated Enigma set from the Poles back in Kabaty Woods.

The machines you are working with, what we call the Bombes, were the brainchild of myself and Professor Welchman. Since we developed them a few years ago we have, of course, been able to crack German codes, but we have not yet been able to keep up with the frequency with which they change the rotor settings of their Enigma machines.

Fortunately, with the recent influx of new staff, such as yourself, our work seems to be progressing nicely. We are going to need every advantage we can get in the coming years, so remember; your contribution is critical.

I look forward to seeing how your work progresses.

Regards, Professor Turing (Alan)

P.S. Myself and Hugh Alexander are organising something of a chess tourney in Hut 2 this evening. Feel free to come along.

Letter 3-1

Dear Mr. Taylor,

As you may be aware we've recently been contacted by Military Intelligence with regards to upcoming plans for an invasion of mainland Europe.

Military HQ wishes to delay efforts to strike in Europe for a few more years still, given that we have yet to assemble a sufficiently large fighting force for such an invasion. However, the Americans and Russians have both been pushing for us to open up a new front against the Germans as soon as possible, and though current plans may be anticipatory at best, it can never hurt to be prepared.

From here on in, the codebreakers here at Bletchley Park have been instructed to contribute any relevant intelligence that they can gather towards the planning of our strike against mainland Europe. As part of this initiative, we are assigning you to intelligence research on 'Operation Roundup'.

Your presence will shortly be requested in the Operations Room, there you can find out more about the plans in question.

We have also received a coded message that we believe may contain information concerning the positioning of German forces on the continent. After the briefing I'd like yourself and Hugh to get to work on decrypting it.

Regards, Alan

Letter 3-2

Dear Mr. Taylor,

As you may be aware we've recently been contacted by Military Intelligence with regards to upcoming plans for an invasion of mainland Europe.

Military HQ wishes to delay efforts to strike in Europe for a few more years still, given that we have yet to assemble a sufficiently large fighting force for such an invasion. However, the Americans and Russians have both been pushing for us to open up a new front against the Germans as soon as possible, and though current plans may be anticipatory at best, it can never hurt to be prepared.

From here on in, the codebreakers here at Bletchley Park have been instructed to contribute any relevant intelligence that they can gather towards the planning of our strike against mainland Europe. As part of this initiative, we are assigning you to intelligence research on 'Operation Sledgehammer'.

Your presence will shortly be requested in the Operations Room, there you can find out more about the plans in question.

We have also received a coded message that we believe may contain information concerning the positioning of German forces on the continent. After the briefing I'd like yourself and Hugh to get to work on decrypting it.

Regards, Alan

Letter 4

Dear William,

We've received further contact from MI5 with regards to the upcoming invasion plans. Under the title of 'Operation Fortitude', they are currently constructing plans to prevent the Germans from successfully anticipating the exact location of our invasion efforts.

Any intelligence that we can contribute towards these efforts will be essential, particularly if we can determine what the Germans expect us to do. Information on how many troops they believe we have, when and where they expect us to attack, and their assessment of our Combined Arms capabilities will be especially relevant.

Also, our current peremptory plans to invade mainland Europe are now under-discussion at the Claridge Conference. As to what this means for our overall war strategy from now on, your guess is as good as mine. Regardless, any information that you can accumulate now may still be crucial for future efforts.

On that note, we also have another message for you to get to work on. Get to it once you have been briefed in the Operations room. As ever, good luck.

Regards, Alan

Letter 5

Dated September 1942

Dear William,

I hope that you have managed to settle in here alright, especially given the recent heavy influx of work.

Unfortunately my presence has been requested in America. They have asked me to aid with their intelligence and code-breaking efforts. I cannot say I expect much, but duty calls. Until I return, you will be passing over to correspondence with Hugh Alexander who I believe you've worked with before. I dare say say over the coming months the responsibility for running Hut 8 will also pass to him, but, I assure you, you are in safe hands.

We have intercepted another important German message which will require your attention today. This one is from High Command, and though we are unsure of its exact contents at present, it has been encrypted with a new cipher that the folks here are affectionately calling 'Tunny'.

While at present HQ seems to favour starting with an invasion of Africa, the contents of this message it is sure to provide vital information that we can use to propel our war effort. Even though we will now also be contributing intelligence to do with Africa to HQ, your assignment remains the same.

Regards, Alan

P. S. My mug seems to have gone missing, I don't suppose you've seen it anywhere?

Letter 10-1

Dear William,

The recent opening of our bombing campaign against the Germans seems to be supplying us with much desired results. Keep up the good work with regards to intercepting relevant intelligence, it may well prove a boon in our effort against the enemy.

As I'm sure you are aware, the Germans have launched a new offensive on the Eastern front in an attempt to encircle the Soviets in Kursk. However their attack has, according to recent reports, stalled. This is excellent news of course. Perhaps too good, because sources on the ground point towards the possibility that someone here has been leaking information to the Soviets.

Of course, German failure in the East perhaps owes something to the diversion of Nazi forces to face our recent assault on Sicily, so this may simply be a hunch. But we have also recently received reports of suspicious activity around Hut 3, the building where the translated decrypts are kept. So if you notice anything awry then please do report it.

In any case, best of luck in your work today.

Regards, Alan

Letter 10-2

Dear William,

The recent opening of our bombing campaign against the Germans has, unfortunately, failed to make a significant impact on their production capacities thus far. Any intel you can provide for Operation Pointblank is much needed in these desperate times.

As I'm sure you are aware, the Germans have launched a new offensive on the Eastern front in an attempt to encircle the Soviets in Kursk. However their attack has, according to recent reports, stalled. This is excellent news of course. Perhaps too good, because sources on the ground point towards the possibility that someone here has been leaking information to the Soviets.

Of course, German failure in the East perhaps owes something to the diversion of Nazi forces to face our recent assault on Sicily, so this may simply be a hunch. But we have also recently received reports of suspicious activity around Hut 3, the building where the translated decrypts are kept. So if you notice anything awry then please do report it.

In any case, best of luck in your work today.

Regards, Alan

Letter 14-1

Dear William,

I have an update of some importance. In February the Germans introduced a new, more advanced, rotor stream cipher machine, for which our current code-breaking methods have proven a somewhat inadequate match. Fortunately, there have recently been some developments in working out the cam settings of the wheels of these 'Tunny' machines, which should soon increase the volume of information we can crack.

Lastly, recent word is that our bombing campaign continues to go well, but we do require better information on our targets to make these efforts decisive.

Regards, Alan

P.S. I don't suppose you have a spare bike chain I can borrow? Mine keeps breaking.

Letter 14-2

Dear William,

I have an update of some importance. In February the Germans introduced a new, more advanced, rotor stream cipher machine, for which our current code-breaking methods have proven a somewhat inadequate match. Fortunately, there have recently been some developments in working out the cam settings of the wheels of these 'Tunny' machines, which should soon increase the volume of information we can crack.

Additionally with our bombing campaign on Germany in full swing, and yielding much desired results, your presence is now requested for another important operation. 'Gambit', as it has been dubbed, pertains to uncovering German submarine operations in the channel. We'll fill you in more at the briefing.

Regards, Alan

P.S. I don't suppose you have a spare bike chain I can borrow? Mine keeps breaking.

Letter 14-3

Dear William,

I have an update of some importance. In February the Germans introduced a new, more advanced, rotor stream cipher machine, for which our current code-breaking methods have proven a somewhat inadequate match. Fortunately, there have recently been some developments in working out the cam settings of the wheels of these 'Tunny' machines, which should soon increase the volume of information we can crack.

Some bad news though, our bombing campaign in Germany has produced insufficient results at the expense of, at this point, too many of our aircraft to remain sustainable on its current scale. Your presence is now required for another important operation which I hope will prove more successful. 'Gambit', as it has been dubbed, pertains to uncovering German submarine operations in the channel. We'll fill you in more at the briefing.

Regards, Alan

P.S. I don't suppose you have a spare bike chain I can borrow? Mine keeps breaking.

Letter 18-1

Dear William,

First order of business today is a pleasant one. Our efforts to conceal the failure of our landing exercises have thus far - to our knowledge - been successful. With the day of the actual assault looming around the corner, this is very good news indeed.

As things stand, we have a great deal of information in place to ensure that our landings be a success. Though they certainly won't mark the end of our efforts here, it is time to begin the final push with regards to the assault. Perhaps, once they have been completed, and - one would hope - successfully at that, we can have something of a well-earned break.

In the meantime, see you in the hut.

Regards, Alan

Letter 18-2

Dear William,

I have some unfortunate news. We have just gotten word from another one of our listening posts that the Germans have caught wind of our failed practice run of the Normandy landings. This is very un-serendipitous indeed, especially given how close the real invasion is. We can only hope that what they know at present is not enough to trounce us when the time comes.

Happily, as things stand, we have a great deal of information in place to ensure that our landings be a success. Though they certainly won't mark the end of our efforts here, it is time to begin the final push with regards to the assault. Perhaps, once they have been completed, and - one would hope - successfully at that, we can have something of a well-earned break.

I'll see you in the hut.

Regards, Alan

Letter 18-3

Dear William,

First order of business today is a pleasant one. Our efforts to conceal the failure of our landing exercises have thus far - to our knowledge - been successful. With the day of the actual assault looming around the corner, this is very good news indeed.

One could say almost a God send, given the present state of affairs. With the balance of information currently in favour of the Germans, who knows, perhaps this could be a turning point in our efforts. Capitalise on this, William, and we might get a well-earned break yet.

Regards, Alan

Letter 18-4

Dear William,

I have some unfortunate news. We have just gotten word from another one of our listening posts that Germans have caught wind of our failed practice run of the Normandy landings. This is very un-serendipitous indeed, especially given how close the real thing is now. We can only hope that what they know at present is not enough to trounce us when the time comes.

This makes what is certainly an already desperate situation even more dire for us. With the Germans holding such an upper-hand on us in terms of intelligence, these last few months we have left before our assault on the continent are going to count.

Regards, Alan

Letter 19-1

Dear William,

Excellent news! Our intelligence efforts towards Operation Overlord have now been completed. With all of the essential information in place, our boys should be able to make the landing a success. This is a major step for us indeed, and although only time will tell how things are going to pan out for us, I believe a celebration is in order. I will see you in the operations room for debriefing.

You've done a truly fantastic job.

Regards, Alan

Letter 19-2

Dear William,

With final preparations underway for D-Day, things are certainly starting to look up for our efforts. Now it's time to make the final push.

Gather whatever intelligence you can for Operation Overlord. While the going is good, we need to make the coming days count in order to ensure everything we need is in place.

Let's get down to it then, shall we?

Regards, Alan

Letter 19-3

Dear William,

Despite our falling behind on our decryption efforts, we have still been able to assemble enough information to ensure at least decent odds for the commencement of Operation Overlord.

Though at this juncture we have no way to tell how things will pan out for us, and I fear we have much to do beyond the Normandy landings, this certainly marks cause for celebration.

But before that, get to the operations room for debriefing. All in all, you've done a fantastic job, William. Enjoy some respite.

Regards, Alan

Letter 19-4

Dear William,

Though as I am sure you are aware things do not look good for us, we still have the chance to turn the tide. Focus your attention to Operation Overlord, and do not let up. If we can assemble the right intelligence ahead of the landings, we might just be able to make a good go of things.

I trust that you know the gravity of our situation, as well as what will be required of us all.

Good luck.

Regards, Alan

Tutorial 1

Mr Taylor I presume. Commander Travis said you'd be coming. I'm Alan Turing, the man in charge of hut 8. Anyway enough of the introductions, we'd better get started.

...

First off try moving one of those bulbs in the middle by holding down left click and dragging it.

...

Good. Now you'll notice two wires coming out of each bulb. Try clicking and dragging a wire to move it.

...

Now try dragging a wire from one bulb to the other to connect them.

...

You can also use a wire to connect a bulb to itself, try that.

...

Very good indeed. These numbered wires show where the current will flow for each digit in a codeword.

...

Once a codeword has been read by the machine, if the last bulb that's on is clear then the codeword is rejected. However if the last bulb that's on is green then the machine will accept the codeword.

...

You can make any bulb accepting, apart from the starting blue one, by right clicking on it. Try making the A bulb an accepting bulb.

...

By default any bulbs you add will reject codewords if they are on at the end. Now try connecting all the wires, anyway you want, and then press the play button on the right.

...

When the machine is running a set of test codewords will come through on the tape on the left. You can stop the tape with the stop button or change the speed with the slider.

...

As you can see for each number in a codeword the current flows through the relevant wire from bulb to bulb.

...

Now try connecting the wires so that if a codeword contains at least a single 1 then it'll be accepted, but a codeword that's all 0s will be rejected.

...

Now stop the machine and try connecting the wires so that if a codeword contains at least a single 1 then it'll be accepted, but a codeword that's all 0s will be rejected.

Tutorial 2

Welcome back Mr Taylor, can I call you William? It doesn't matter, let's get to work shall we?

...

Firstly try adding a new bulb to the machine by dragging it from the plus on the bottom left and dropping it on the plug board in the middle.

...

You can also remove any bulbs, except the starting one, by dragging them over the red X in the bottom right corner.

...

Excellent. Now today's Enigma settings only seem to accept codewords where the last digit is a 1, codewords that end with a 0 are rejected. Try building a machine to filter these codewords.

Victory / failure barks

Very good indeed, William.

...

That's... that's genius!

...

Success!

...

sigh What a pity.

...

This certainly isn't the outcome I'd hoped for.

...

We'll try again tomorrow.