Kryptos 2022 – Challenge 2

Solution

If we can guess a crib, we might be able to determine where it appears and then begin to determine the key. Since we expect the message to talk about when and where a shipment of liquor will be coming through, some possible cribs might be: "meet", "shipment", maybe a day of the week, a number (for a time or date). Some of the cribs you try may not have any possible placements, but "shipment" does give us a possibility.

Since "shipment" is a whole word, when we get ready to encrypt it using this method it will begin and end with "XX". Converting the plaintext to Morse code, we have:

```
XX...X....X..X.--.X--X.X-.  X-XX
   s   h  i   p  m  e  n  t
```

We do not know if we start by grouping the "XX" together or whether it is split, so there are two cases to try. If we try the latter, then the above crib would be grouped as:

```
?X X. .. X. .. .X .. X. -- .X -- X. X- .X -X X?
```

There are three occurrences of " . . " (call this A) , four occurrences of "X ." (call this B), three of " . X" (call this C), and two of "--" (call this D). So we are looking for a string in the ciphertext that has this pattern:

```
B A B A C A B D C D B ? C ?
```

We find a match on the second line of the ciphertext starting with the 5th number (6). This gives us a good part of the key:

```
...---XXX
.-X.-X.-X
8 7 5261
```

Starting at the beginning of the ciphertext, we can fill in what we know from our partial key. The first number (4) doesn't start with an "X", so it must be " .-" or "-." This means the plaintext starts either "wehave" or "kehave". The former looks better. Our key is now:

```
...---XXX
.-X.-X.-X
```

```
847 5261
```

With only two numbers unaccounted for, we can decrypt most of the message and determine the missing elements of the key:

```
...---XXX
.-X.-X.-X
```

```
847352619
```

Pt: we have a rare shipment of pappy van winkle to distribute meet at the warehouse on canal street Tuesday midnight