1 ADFGVX

The ADFGVX system was first used in the battlefield March 5, 1918. It was broken June 1 by Georges Painvin. We have two keys in this situation: k_1 a 6×6 square, and k_2 a permutation of n, where n is even. For example,

	A	D	F	G	V	X
A	C	O	8	X	F	4
D	M	K	3	A	Z	9
F	N	W	L	0	J	D
G	5	S	I	Y	H	U
V	P	1	V	B	6	R
X	E	Q	7	T	2	G

Then if the second key is given by the permutation:

4 9 5 15 2 8 16 12 13 17 1 18 3 19 10 7 6 11 14 20

So then our table is given as follows:

4	9	5	15	2	8	16	12	13	17	1	18	3	19	10	7	6	11	14	20
G	V	X	D	Y	X	X	A	X	D	G	X								
H		Q		R		E		Q		U		E		S		T		S	
				A	D					F	F								
F		R		O		N		T		L		I		N		E		S	
				G	X					G	F								
I		T		U		A		T		I		O		N		B		Y	
				F	F					V	X								
T		E		L		E		G		R		A		M		H		Q	
X	F			G	N					V	X								
7		T		H		C		O		R		P		S		E		D	

Up to this point, our ciphertext is GFGVV VAGFG.

2 The Snail Encryption System

Enter plaintext by following the snail:

W	E	H	A	V	E	A	L	S	O	C	O
R	I	C	A	O	F	T	H	E	F	I	M
E	I	M	E	T	O	E	N	G	A	E	E
M	T	I	N	G	O	F	F	O	G	R	T
A	O	L	N	Q	V	I	L	R	E	C	O
D	N	O	A	U	G	O	I	T	I	E	T
N	S	O	R	R	G	F	Z	O	N	V	H
I	I	C	T	D	G	N	I	T	T	R	I
M	S	F	E	H	T	E	K	A	H	G	S
E	I	O	Y	R	V	X	V	L	E	E	H
R	H	T	W	O	N	F	O	Y	C	N	A
O	T	T	O	P	S	D	E	W	O	L	L

The ciphertext is obtained by reading the diagonals. In this case, WREEI HMICA...

3 Vernam Two-Tape System

Given the following

a	6	13	20	6	13	20	6	13	20	6	13	20
b	18	0	6	19	18	0	6	19	18	0	6	19