

---

# **CRYPTOGRAPHY & NETWORK SECURITY**

---

**SYMMETRIC ENCRYPTION**

**PLAYFAIR CIPHER - PROBLEM**

When the PT-109 American patrol boat, under the command of Lieutenant John F. Kennedy, was sunk by a Japanese destroyer, a message was received at an Australian wireless station in Playfair code:

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

The key used was royal new zealand navy. Decrypt the message. Translate TT into tt.

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R			

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O			

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O	Y					

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O	Y	A	

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O	Y	A	L	

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O	Y	A	L	
N					

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O	Y	A	L
N	E			

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O	Y	A	L
N	E	W		

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O	Y	A	L
N	E	W	Z	

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O	Y	A	L
N	E	W	Z	

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O	Y	A	L
N	E	W	Z	D

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

R	O	Y	A	L
N	E	W	Z	D
V				

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

## Constructing the matrix :

Key is ROYAL NEWZEALAND NAVY

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

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

# Encryption :

## Rules:

1. Repeating plaintext letters in the same pair must be separated with a filler letter X.

eg:- BALLOON ---- BA LL OO N ----- BA LX LO ON

2. If the plaintext has an odd number of characters, add an X to the end to make it even.

eg:- ARISE --- AR IS EX

3. Two plaintext letters that fall in the same row of the matrix are each replaced by the letter to the right, with the first element of the row circularly following the last.

4. Two plaintext letters that fall in the same column are each replaced by the letter beneath, with the top element of the column circularly following the last.

5. Otherwise, each plaintext letter in a pair is replaced by the letter that lies in its own row and the column occupied by the other plaintext letter.

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

KX --

Row of K & Column of X - P  
Row of X & Column of K - T

So KX - PT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

JE--

Just above J - B

Just above E - O

So JE - BO

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

P = PT

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YU-- AT

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

P = PTBOAT

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

RE-- ON

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

P = PTBOATON

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOUYWRHE BAAHY USEDQ

BE-- EO

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

P = PTBOATONEO

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ZW--

Just left of Z - W

Just left of W - E

So ZW - WE

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

P = PTBOATONEOWE

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOUYWRHE BAAHY USEDQ

EH -- NI or NJ

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

P = PTBOATONEOWENI  
P = PTBOATONEOWENJ

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

EW -- NE

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

P = PTBOATONEOWENINE  
P = PTBOATONEOWENJNE

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

RY -- LO

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

P = PTBOATONEOWENINELO  
P = PTBOATONEOWENJNELO

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOUYWRHE BAAHY USEDQ

TU -- ST

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

P = PTBOATONEOWENINELOST

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

HE -- IN or JN

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

P = PTBOATONEOWENINELOSTIN  
P = PTBOATONEOWENINELOSTJN

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YF -- AC

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

P = PTBOATONEOWENINELOSTINAC  
P = PTBOATONEOWENINELOSTJNAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

SK -- TI

RE --

HE --

GO --

YF --

IW --

TT --

TU --

OL --

KS --

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

P = PTBOATONEOWENINELOSTINAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

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

SK -- TI

RE -- ON

HE --

GO --

YF --

IW --

TT --

TU --

OL --

KS --

P = PTBOATONEOWENINELOSTINAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

SK -- TI  
RE -- ON  
HE -- IN  
GO --  
YF --  
IW --  
TT --  
TU --  
OL --  
KS --

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

P = PTBOATONEOWENINELOSTINAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

SK -- TI  
RE -- ON  
HE -- IN  
GO -- BL  
YF --  
IW --  
TT --  
TU --  
OL --  
KS --

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

P = PTBOATONEOWENINELOSTINAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

SK -- TI  
RE -- ON  
HE -- IN  
GO -- BL  
YF -- AC  
IW --  
TT --  
TU --  
OL --  
KS --

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

P = PTBOATONEOWENINELOSTINAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOUYWRHE BAAHY USEDQ

SK -- TI  
RE -- ON  
HE -- IN  
GO -- BL  
YF -- AC  
IW -- KE  
TT --  
TU --  
OL --  
KS --

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

P = PTBOATONEOWENINELOSTINAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOUYWRHE BAAHY USEDQ

SK -- TI  
RE -- ON  
HE -- IN  
GO -- BL  
YF -- AC  
IW -- KE  
TT -- TT  
TU --  
OL --  
KS --

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

P = PTBOATONEOWENINELOSTINAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOUYWRHE BAAHY USEDQ

SK -- TI  
RE -- ON  
HE -- IN  
GO -- BL  
YF -- AC  
IW -- KE  
TT -- TT  
TU -- ST  
OL --  
KS --

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

P = PTBOATONEOWENINELOSTINAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

SK -- TI  
RE -- ON  
HE -- IN  
GO -- BL  
YF -- AC  
IW -- KE  
TT -- TT  
TU -- ST  
OL -- RA  
KS --

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

P = PTBOATONEOWENINELOSTINAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

SK -- TI  
RE -- ON  
HE -- IN  
GO -- BL  
YF -- AC  
IW -- KE  
TT -- TT  
TU -- ST  
OL -- RA  
KS -- IT

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

P = PTBOATONEOWENINELOSTINAC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS Y CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

SK -- TI  
RE -- ON  
HE -- IN  
GO -- BL  
YF -- AC  
IW -- KE  
TT -- TT  
TU -- ST  
OL -- RA  
KS -- IT

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

P = PTBOAT ONE OWN IN ELOSTIN ACTION IN BLACKETT STRAIT

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS Y CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

SK -- TI  
RE -- ON  
HE -- IN  
GO -- BL  
YF -- AC  
IW -- KE  
TT -- TT  
TU -- ST  
OL -- RA  
KS -- IT

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS~~Y~~ CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ --

PO--

BO--

TE--

IZ--

ON--

TX--

BY--

BN--

TG--

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS<sup>Y</sup> CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO--

BO--

TE--

IZ--

ON--

TX--

BY--

BN--

TG--

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS<sup>Y</sup> CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO--

TE--

IZ--

ON--

TX--

BY--

BN--

TG--

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS Y CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO-- ES

TE--

IZ--

ON--

TX--

BY--

BN--

TG--

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS Y CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO-- ES

TE-- SW

IZ--

ON--

TX--

BY--

BN--

TG--

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS<sup>Y</sup> CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO-- ES

TE-- SW

IZ-- ME

ON--

TX--

BY--

BN--

TG--

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS Y CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO-- ES

TE-- SW

IZ-- ME

ON-- RE

TX--

BY--

BN--

TG--

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS<sup>Y</sup> CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO-- ES

TE-- SW

IZ-- ME

ON-- RE

TX-- SU

BY--

BN--

TG--

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS~~Y~~ CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO-- ES

TE-- SW

IZ-- ME

ON-- RE

TX-- SU

BY-- CO

BN--

TG--

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS<sup>Y</sup> CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO-- ES

TE-- SW

IZ-- ME

ON-- RE

TX-- SU

BY-- CO

BN-- VE

TG--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKS~~Y~~ CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO-- ES

TE-- SW

IZ-- ME

ON-- RE

TX-- SU

BY-- CO

BN-- VE

TG-- XC

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT

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

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO-- ES

TE-- SW

IZ-- ME

ON-- RE

TX-- SU

BY-- CO

BN-- VE

TG-- XC

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWOMILESWMERESUCOVEXC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

YC -- TW

AJ -- OM

PO-- IL

BO-- ES

TE-- SW

IZ-- ME

ON-- RE

TX-- SU

BY-- CO

BN-- VE

TG-- XC

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ON -- RE

EY--

CU--

ZW--

RG--

DS--

ON--

SX--

BO--

UY--

WR--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU--

ZW--

RG--

DS--

ON--

SX--

BO--

UY--

WR--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW--

RG--

DS--

ON--

SX--

BO--

UY--

WR--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW-- WE

RG--

DS--

ON--

SX--

BO--

UY--

WR--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW-- WE

RG-- LV

DS--

ON--

SX--

BO--

UY--

WR--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW-- WE

RG-- LV

DS-- EX

ON--

SX--

BO--

UY--

WR--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW-- WE

RG-- LV

DS-- EX

ON-- RE

SX--

BO--

UY--

WR--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOUYWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW-- WE

RG-- LV

DS-- EX

ON-- RE

SX-- QU

BO--

UY--

WR--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOUYWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW-- WE

RG-- LV

DS-- EX

ON-- RE

SX-- QU

BO-- ES

UY--

WR--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW-- WE

RG-- LV

DS-- EX

ON-- RE

SX-- QU

BO-- ES

UY-- TA

WR--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOUYWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW-- WE

RG-- LV

DS-- EX

ON-- RE

SX-- QU

BO-- ES

UY-- TA

WR-- NY

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW-- WE

RG-- LV

DS-- EX

ON-- RE

SX-- QU

BO-- ES

UY-- TA

WR-- NY

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE XC  
REWOFTWELVEXREQUESTANY

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

ON -- RE

EY -- WO

CU-- FT

ZW-- WE

RG-- LV

DS-- EX

ON-- RE

SX-- QU

BO-- ES

UY-- TA

WR-- NY

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE X CREW OF TWELVE X  
REQUEST ANY

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

HE -- IN

BA --

AH --

YU--

SE--

DQ--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE X CREW OF TWELVE X  
REQUEST ANY

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOUYWRHE BAAHY USEDQ

HE -- IN  
BA -- FO  
AH --  
YU--  
SE--  
DQ--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE X CREW OF TWELVE X  
REQUEST ANY

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

HE -- IN  
BA -- FO  
AH -- RM  
YU--  
SE--  
DQ--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE X CREW OF TWELVE X  
REQUEST ANY

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

HE -- IN  
BA -- FO  
AH -- RM  
YU-- AT  
SE--  
DQ--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE X CREW OF TWELVE X  
REQUEST ANY

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

HE -- IN  
BA -- FO  
AH -- RM  
YU-- AT  
SE-- IO  
DQ--

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE X CREW OF TWELVE X  
REQUEST ANY

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

HE -- IN  
BA -- FO  
AH -- RM  
YU-- AT  
SE-- IO  
DQ-- NX

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE X CREW OF TWELVE X  
REQUEST ANY

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

HE -- IN  
BA -- FO  
AH -- RM  
YU-- AT  
SE-- IO  
DQ-- NX

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESU COVE X CREW OF TWELVE X  
REQUEST ANY INFORMATIONX

KXJEY UREBE ZWEHE WRYTU HEYFS  
KREHE GOYFI WTTTU OLKSY CAJPO  
BOTEI ZONTX BYBNT GONEY CUZWR  
GDSON SXBOU YWRHE BAAHY USEDQ

HE -- IN  
BA -- FO  
AH -- RM  
YU-- AT  
SE-- IO  
DQ-- NX

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

P = PT BOAT ONE OWE NINE LOST IN ACTION IN BLACKETT  
STRAIT TWO MILES SW MERESUCOVE X CREW OF TWELVE X  
REQUEST ANY INFORMATION X



# THANK YOU



*Vijesh Nair*