

The particularity of the new model

In the old days, a BM dot meant that the Psi wheels certainly did not move. Recently the Tunny machine has been made more complicated and the LIMITATION must also be considered. The limitation consists of a sequence of dots and crosses, and the Psi wheels stand still only when there is both a BM dot and LIMITATION CROSS. This combination is called TOTAL MOTOR DOT (TM).

At all other places, there is a TOTAL MOTOR CROSS and the Psi wheels move on. The Psi wheels move therefore when there is either (a) a BM Cross or (b) a BM Dot and Limitation Dot.

Example:

BM:	x . . . x . . . x x x . x . x x .
Limitation:	. x . x x . . x x x . . x x . . x
TM:	x . x . x x x . x x x x x . x x .

It is always arranged that the number of crosses in the TM is two or three times as great as the number of dots. The Psi wheels therefore move more often than they stand still.

The Chi2 Bar limitation:

The limitation at any point is given by the character of Chi 2 which was used in ciphering the PREVIOUS letter. This is called Chi2 ONE BACK (or Chi2 Bar). It is used on the new cipher equipment. Unfortunately there are other limitation systems.

Introduction of QEP

At the end of October 1942, the practice of prefacing every message with twelve indicators was dropped and the QEP system initiated, by which the whole 12 settings were sent under a single code number obtained from a book.

This meant a serious reduction in the amount of traffic which we were able to decode, because we had to rely entirely on depths. Fortunately, the Germans sent a number of messages on the same QEP number and we were able to anagram these depths and decode the messages.

Example :

- 1) First the sender send the QEP code which indicates the wheels settings
QEP139
- 2) After a while (which permits to the recipient to set the wheels starting position), the sender send:
UNUM
- 3) Then he send the cryptogram.