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STEADY.

The decision of Dail Eireann on the acceptance or rejection of the proposed Treaty between Great Britain and Ireland has been postponed until the New Year. The officers and men of our Army have again to face the period of uncertainty before vital decisions, affecting the future of the Army and of the whole nation are arrived at by those in control of Ireland's destinies. They must observe during this period of uncertainty the same splendid discipline as they have shown since first the political crisis arose. Political happenings, differences of opinion among members of the Army must not be allowed to impair the discipline and solidarity of the nation's right arm, that splendid body that has so nobly carried out the national will in the past, heedless of risk or suffering. The officers and men of the Army, irrespective of their personal views, will continue to work together for the common good and the common society.

METHODS OF CIPHER.

There is practically no limit to the variety of ciphers, and the signallers working the stations of any system can adopt their own method. A couple of examples, however, one very simple and the other more complex, are given here as a guide, together with a few important general rules which should be borne in mind no matter what method is adopted.

A SIMPLE CIPHER. The simpler method is to take a keyword such as "communications" and write it down crossing out every letter that occurs twice in the word the second time it appears. Having done this, the alphabet must be written down, leaving out all the

letters of which the keyword is composed, beginning from the first and putting them down in alphabetical order. The alphabet thus written must commence immediately after the last letter of the keyword and continue the line of letters until it numbers thirteen letters, including those of the keyword which are not crossed out. As soon as the top line is completed to the number of thirteen letters in this manner, each of the remaining thirteen letters of the alphabet must be written down according to the rules stated, one under each of the letters which are not crossed out in the top line.

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

Any message written in English can easily be put into cipher according to the following rule. Each letter in the message will be represented by the letter immediately above or below it, in the line of cipher, as the case may be. Thus the following message in English, "Convoy will march at six to-night," will be enciphered as follows: GHLSH EBPNN JQTGO QRVPD RHLPC OR. The process of deciphering the message is the exact converse of enciphering it.

THE PLAYFAIR CIPHER.—The method most generally used in the Playfair cipher, which is more difficult to solve than the one described in paragraph 2. It is commenced in the same manner. That is to say, taking the word "commandant" as keyword, the letters which occur twice or more often in it are crossed out after the first time. Then immediately below each of the letters of the keyword which are not crossed out are written in alphabetical order from left to right the letters of the alphabet, except those included in the keyword, omitting the letter J, the letter I being used to represent both I and J. The result will be twenty-five letters arranged—in this case—in seven columns, as shown below:

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USE OF COVER.

It is absolutely essential that every soldier in training should learn:—

- (1) What cover is bullet proof.
- (2) How best he can get protection behind it.

It is certain that during operations many lives are lost through men hiding behind small trees, thin banks of earth, and such cover, believing them to be bullet-proof. Again, more men than would at first be imagined, seem to consider, like the Ostrich, that if they cannot see the enemy, the enemy cannot see them.

When crawling forward they arch their backs through they keep their heads down. They fancy they are safe, as they cannot see the enemy, though in point of fact, their backs offer a fine target, Crawling.

It is much more difficult to crawl well than would at first be supposed. It is quite certain that the men will at first think there is nothing to be learnt about crawling.

It is very desirable to demonstrate to men how important good crawling may be as a comparatively safe means of covering ground, when to run would be extremely dangerous.

To give a good demonstration, choose a piece of almost flat ground, with a few very slight folds in it. Before the Unit arrives, try and find a fold in the ground from which part of the field is not visible, even if one crawled forward a couple of yards.

Choose a position for the section so that, if lying down, the men of it would not be able to see a man lying in this fold of the ground. There are few fields so flat that it is not possible to hide even the whole Unit somewhere in them, if the men lie quite flat.

March the section to the selected spot. Point out to the men that the field appears almost flat, and that it would seem difficult to conceal anyone in it.

Then make the section lie down facing the fold in the ground. Detach four or five men and take them to the further end of the field. Let them advance towards the section, but as they enter the fold in the ground, make them throw themselves flat, and let them crawl forward. This, if done properly, should make clear to the remainder of the men the great possibilities of crawling.

Now practice the men in crawling. To offer the least possible mark when crawling a man should:—

- (1) Lie absolutely flat, with his elbows in front, his wrists under his chin. His back should be hollow.
- (2) To advance he should bring one knee forward, keeping the inside of the knee flat on the ground, and his back hollow. Above everything he must not draw his knee under him.

He must push himself forward with his leg, helping his progress with his elbows.

- (3) One of the principal points to remembered when crawling is:—“Always move at the same rate as a back ground when one is afforded. That is, if grass or trees are swaying with the wind, move with them. Men must be practiced in this. In good crawling a man presents scarcely more of a target when moving, than when stationary. Most rifle bullets go too high. A line of men crawling properly present a very poor target to rifle fire. Almost every bullet will pass over their heads.

By night a Company of men might well crawl to within a few yards of the enemy, without suffering loss, if the above points are noted and practiced.

Firing round cover. This is a very suitable practice for a wet day, and can easily be performed indoors.

Lay six packs on the floor, two at the bottom, and two above them, and again two on top. Place a mirror opposite them. Make a mark on the bottom of the mirror with soap, or stick a piece of paper on it.

Make each man in turn lie down behind the packs with his rifle. He should be in such a position that he cannot see the mark on the mirror. Then let him assume a position so that he can fire at the target.

He will see in the glass how much he is exposing himself, and how best he can improve his position. Tell him that he should fire round cover, and *not* over it, whenever possible.

What is bullet proof. Every man must be taught the following rules. If it is possible to give a demonstration it will impress them for life:—

- (1) Most kinds of earth a rifle's length thick is proof against bullets.
- (2) Wood is scarcely ever thick enough to be proof
- (3) A very thick tree may turn a bullet, though very few are ever thick enough to be proof.
- (4) Brick and stone wall 1½ feet thick may be regarded as proof. Walls built of loose stone are a most dangerous type of cover, and must not be used unless they are constructed as saugars, that is, stones, earth and stones sandwiched together, with layers, of sods laid on top to guard against splinters.
- (5) Shingle 1 foot thick, or coal 1½ feet thick is proof.

Each man should be made repeat these rules.

Men should be frequently asked when on field training, if a certain bank or wall is bullet proof.

OUTPOSTS.

Their purpose.—It is necessary that Active Service Units should *always* be protected against surprise. When the unit is halted, this is done by a screen of Scouts who are called outposts.

Their objects are:—

(1) To enable the main body to rest without fear of surprise, and to prevent enemy scouting.

(2) If attacked, to hold on long enough to enable the main body to get into a state of defence, which positions will be selected by the O.C. Unit, on halting each Section Commander knowing the particular position his section will occupy in case of surprise.

Composition of outposts.—The two outpost duties of resisting attack, and of guarding against surprise, and against attempts by enemy to reconnoitre, are performed in the following manner:—

Each outpost has one or more picquets whose duty it is to fight.

The word "picquet" should suggest fighting to the mind.

The duty of guarding against surprise, and scouting by the enemy, is performed by a sentry or patrol.

The words "sentry" or "patrol" should suggest vigilance, but not fighting to the mind.

Method of posting outposts. The rough line of resistance, and his front having been told him, the O.C. Outposts sends out a screen of scouts to cover the the posting of his picquets. He tells the Scouts where to go, and at what time they should return, (about half an hour should suffice.)

He now inspects his whole position, and decides if one or more picquets are needed. He is guided in this by the following rule:—

Each line of approach for the enemy must be guarded by a picquet.

Let us imagine that he decides to use two picquets. He points out to his two N.C.O.'s whom he details as picquets Commands, roughly where these two picquets should be stationed. They are numbered No. 1 and No. 2 picquet.

The actual position of the picquet is chosen by its Commander. By day it must be able to command by fire the approach into the position. By night it must be able to command it with the bayonet.

So it often happens that a picquet has different day and night positions. The day position must have a longer field of fire than is necessary for a normal defensive position, as the outposts object is to delay the enemy, and not give him a protracted battle on its position.

The N.C.O. of each picquet is responsible for guarding his picquet against surprise, just as he is responsible for guarding the main body against sur-

prise. He therefore, goes to the front of his position and decides how few sentries will suffice to do this. (Two men go to each sentry group.)

Let us imagine that he decides to use two sentries. He returns to his picquet, picks out the necessary men for sentry work, and places them in their positions. These operations completed, he lets his men rest. Men may not stray from the picquet, nor may more than one fall out at a time. Men of the picquet must always have their kits on, and rifles loaded at their sides

It may sometimes be deemed advisable to have a visiting patrol to see that sentries are awake, and on the alert.

This practice often causes unnecessary movement, and thus betrays the presence of an otherwise well concealed outpost. It is, therefore not under normal circumstances, desirable.

Sentries are relieved every two hours, and with as little noise and movement as possible. (Practice this.)

At some time before dusk, at an hour after a sentry has been posted, another additional sentry will be posted for two hours. There will thus, by night, be two sentries, one doing his first hour of duty, the other his second. One will be discontinued at dawn. The one doing his second hour will keep his rifle at the slope.

Notes on outposts.

- (1) Relief for outpost arrive one hour before dawn.
- (2) At dawn, which is likely hour for attack, there is thus a double strength of outposts.
- (3) As soon as it is clear that no attack is forthcoming the old outpost will move off.
- (4) If the Column which the outpost cover is advancing, it will pass through them, They then reform, and march at the rear of the main body.
- (5) If the Column is retiring, the position of the outposts will be taken over by the rear guard.
- (6) The less firing there is by sentries, the better their duty is accomplished.
- (7) By night sentries have fixed bayonets, unless the moon is very bright.
- (8) No smoking by night is allowed. No smoking by day except by picquets at the discretion of the O.C. Outpost.
- (9) The use of detached posts, whose object may be found in text books, should be firmly avoided.
- (10) Outpost duty is exacting, and should be performed by as few men as possible.
- (11) It is far better to hold on too long, if attacked, than not to give the main body sufficient time to get ready.
- (12) The conscientious performance of Outpost duties is necessary in order to avoid disasters.

METHODS OF CIPHER (Continued from page 1)

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

A square divided up into equal spaces which number five horizontally or vertically must then be drawn, and each square filled in with one letter of the keyword, commencing with the first letter on the top and proceeding down each column in succession. The letters must be written in the squares from left to right, horizontally, as shown in the diagram below:

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

The message to be enciphered must then be divided into pairs of letters a dummy letter, say X, being added to the last letter if it is not paired. A dummy letter must also be added in pairing the letters to prevent the same letter being repeated in a group which may give the enemy a clue to the cipher. The following example explains the manner in which the letters of a message are paired for enciphering and shows the introduction of a dummy letter to prevent two "N's" being paired:

"I am urgently in need of help"

I a m u r g e n t l y i n x n e e d o f h e l p.

Each of these pairs of letters to be enciphered must be found in the key square in one of three positions:

- In the same horizontal line of the key square.
- In the same vertical column of the key square.
- At the opposite corners of a rectangle in the key square.

RULES FOR ENCIPHERING.—The rules for enciphering the pairs of letters in this method are as follows:

(a) If the pair occur in the same horizontal line in the key square, take the letter which immediately follows each as its enciphering letter. If a letter to be enciphered is found in an end space of a horizontal line, the letter in the opposite end space in the same line must be taken as its enciphering letter.

For instance:

CB enciphered will become BL.
 PM " " " XF.
 RQ " " " QY.

(b) If the pair occur in the same vertical column in the key square, taken the letter immediately beneath each in that column for its enciphering letter. If a letter to be enciphered is found in the end space of a vertical column, the letter in the opposite end space in the same column must be taken as its enciphering letter.

For instance:

CE enciphered will become EQ.
 PN " " " YU.
 TL " " " LX.

(c) If the pair occur at opposite corners of a rectangle anywhere in the key square, take the letter at the other two corners of the rectangle occurring in the same horizontal line for the enciphering letter of each.

For instance:

CP enciphered becomes BE, the letters at the opposite corners of the rectangle formed by the letters CBPE.

PS enciphered becomes MN, the sides of this rectangle being formed by the letters PXM, MGS, SHN, NYP respectively.

The above message when enciphered on this method will read as follows:

TQ PK QR PZ LX QU HP ZP FZ FR ZX BX.

It will be written in groups of five letters for sending, thus:

TQPKQ RPZLX QUHPZ PFZFR ZXBX.

It will count in a message as five words. The process of deciphering the message is the exact converse of enciphering it.

VARIATIONS.—An infinite number of variations can be introduced into this method of cipher by prearrangement, by altering the method of placing the letters of the keyword alphabet in the key squares. It may be for instance, be agreed to take the columns of the key word alphabet backward instead of forward; upward instead of downward; or to take every second, third, fourth letter in succession instead of taking them consecutively. But, of course, whatever method is used, it must be known to both parties