

REF ID: A67461
 COMMUNICATIONS BRANCH

Date: 15 Oct '43

TO: <i>Mr. Friedman</i> B Fr	FROM:	TO:	FROM:
Chief "E" Branch		Analysis Section	
① Executive Officer	<i>Am</i>	Operations Section	
Admn. and Pers. Unit		Traffic Section	
Chief Radio Engineer		<i>Mag Car</i>	✓
Engineering Section			
Rad. Int. Section			
Supply Section			

- Comments and return
- Information
- Signature
- Information and return
- Information and File
- Inf. and forward
- Your action by.....
- See me at.....
- For Inf. of All

Mr. Friedman
 We do not have any figures on the delay time in baskets waiting for the next operation. Col Brown does not believe it advisable to make such a study at this time therefore we will not be able to obtain this information for you
 Lt Redick

ARLINGTON HALL STATION

Date _____

TO

FROM

_____ Commanding Officer
 _____ Asst. Commandant
 _____ Dir. of Com. Research
 _____ Executive Officer
 _____ Asst. Executive Officer
 _____ Adjutant
 _____ Asst. Adjutant
 _____ Coordination Section
 _____ Chief, Headquarters Branch
 _____ Chief, A Branch
 _____ Chief, B Branch
 _____ Chief, C Branch
 ✓ Chief, D Branch
 ✓ Chief, E Branch *St. Radnik*
 _____ Chief, F Branch
 _____ Dir. of Training
 _____ C. O. of Troops
 _____ Property Officer
 _____ Personnel Officer
 _____ Provost Marshal
 _____ Classified Mail Room
 _____ Secretary to C. O.
 _____ General Files
 _____ 201 Files

_____ Comments and Return
 _____ Recommendations
 _____ Information
 _____ Information and Return
 _____ Inf. and Forwarding
 _____ Your Information and File
 _____ Signature, if approved
 _____ See Note on Back
 _____ As Requested
 _____ As Discussed
 _____ Your Action

This is very interesting. I am told that the WD Code Center average is 17 minutes for an outgoing 50 gp Sigaba message. That would be 3 gps/min while your figures are twice that. However, what I am more anxious to know is what your figures would be for the same kind of study.

REF ID: A67467
that were made in the WD
Code Center as to the % of
time taken by the successful
operations, this to
show how much is spent
in "waiting-in-baskets."
Have you anything on
this?

J.

~~CONFIDENTIAL~~

6 October 1943

MEMORANDUM FOR: Mr. William F. Friedman

1. Both procedures and time studies conducted by the Arlington Hall Message Center are submitted as a possible aid to a solution of the problems of basic letter. The procedures are submitted to indicate the control over each message maintained by this Message Center and as a condition precedent to understanding the time studies and charts.

2. The present procedures within the Message Center have been in effect for a period of only three months. During that period, there has never been a backlog of code work.

3. The theory of the present organization is based on the fact that officers and key civilian personnel are directly responsible at all times for the speed with which messages are processed.

a. Outgoing messages are processed as follows:

1. Messages are received by the outgoing trick chief at the desk. They are immediately time-stamped, inspected for completeness of address, legibility, authentication, stereotyped phraseology and correct official signature.
2. The message is then entered in the proper classified outgoing log-book and is assigned the next unused number.
3. The message is taken to the code room and placed in the basket of the Officer in Charge of the code room.
4. The Officer in Charge of the code room prepares assignment slips in duplicate, showing the message number and time received.
5. He causes the cryptographic file clerk to assign the proper system for the encipherment of the message.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

6. The cryptographic file clerk assigns the proper system, carefully selecting special SIS systems where the originator has so indicated.
 7. The Officer in Charge of the code room now enters the name of the assigned code clerk and the time assigned on both copies of the assignment slip, clipping the original slip to the message and placing the copy thereof in the "live file".
 8. A code clerk enciphers the message and returns it to the Officer in Charge of the code room, who enters the time completed on both copies of the assignment slip.
 9. He enters the name of the code clerk assigned to check the message and the time assigned on both copies of the assignment slip, replacing the duplicate in the "live file". He hands the message to the code clerk who checks by entirely deciphering the message.
 10. The Officer in Charge now enters the time completed on the original of the assignment slip, removes it from the message and places it in the "dead file", destroying the duplicate assignment slip and returning both the encodement and message to the outgoing trick chief.
 11. The outgoing trick chief arranges the message for transmission. He prepares the word count of the message, checks it for proper outward form of the cryptographic copy and routes the encodement to the teletype operator.
 12. After the message is sent, the teletype operator returns it with one teletype copy to the outgoing trick chief, who completes the entries in the log and stamps the time sent on the original, sends the teletype copy to the Message Center file and places the original message in the file for delivery to the originator.
- b. Incoming messages are processed as follows:

~~CONFIDENTIAL~~

1. Messages are received by the incoming trick chief at the desk. They are immediately time-stamped and inspected for group count. The incoming trick chief then assigns it the next unused number in the incoming classified log-book.
2. The message is taken to the code room and handed to the Officer in Charge of the code room.
3. The Officer in Charge of the code room prepares assignment slips in duplicate, assigning the message to a code clerk. He then clips the original of the assignment slip to the message and files the duplicate assignment slip in the "live file". He then hands the message to the code clerk.
4. The code clerk deciphers the message and returns the decipherment and message to the Officer in Charge, who marks the time completed on both copies of the assignment slip and examines the decipherment for clarity. If it is satisfactory he returns the copy of the assignment slip to the "live file" and edits the message.
5. The Officer in Charge hands the message to a typist who types the message and returns the decipherment and prepared copy to the officer.
6. The Officer in Charge of the code room rechecks the message for accuracy and neatness. If he is satisfied he files the copy of the assignment slip in the "dead file" and returns the completed message to the incoming trick chief.
7. The incoming trick chief completes his entries in the log-book, checks the message for accuracy and neatness and places the message in the delivery file for delivery to the addressee.

~~SECRET~~

~~CONFIDENTIAL~~

4. It will be noted that when a message is not in the code room, the trick chiefs are specifically responsible for the processing of a message; when it is in the code room, the Officer in Charge of the code room is specifically answerable. The fastening of responsibility on an individual at all stages insures a speedy flow of all messages through the Message Center.

5. Attached are exhibits A, B, C, D, E and F. Exhibits A, B and C indicate the mean number of code groups per minute produced by the average code clerk. Exhibits D and E are assignment slips used by the Officer in Charge of the code room. Exhibit F is a copy of the individual code clerk's daily record.

- a. In any consideration of the exhibits, it should be noted that the time required to decipher garbled messages, messages held up by trouble with the cryptographic apparatus, and messages enciphered or deciphered by new personnel are included; i.e. an all-inclusive mean average is obtained. It is noteworthy that there has been a general increase of speed as the organization has learned to operate under the new procedures.
- b. Certain results should also be explained. Typex averages run high as compared with the Sigaba. Having only one Typex cryptographic system permits the machines to be set up for an entire day at 0001Z daily. Thus the time consumed on a Typex message merely includes the choosing of a message setting and the time required for typing. In Sigaba operations, due to the number of cryptographic systems on hand, the time consumed in deciphering, enciphering or checking a message includes the setting up of a basket and tearing it down. This materially retards speed but insures correct results.

*Why not
have more
baskets - one
for each sign
language.*

6. In view of the foregoing, the following suggestions are made:

- a. A set of controls such as discussed in Item 4 herein may be the key to the problem on hand. The placement of officer personnel at certain points in a code center has the advantage of eliminating basket-waitings and further permits the officer to acquire specific knowledge of each code clerk's capabilities.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

- b. The maintenance of individual code clerk records indicate to the code clerk that his speed is being checked. A proper balance of speed and accuracy can be maintained by carefully and properly educating the individual code clerk.
- c. A more speedy flow of traffic may often be obtained by the streamlining of log-books and by the correct placement of cipher apparatus.
- d. It is not believed that the Autoaba or similar apparatus will materially assist where so much time is lost in waiting for the next operation.

H. E. Redick

WFR

H. E. REDICK
1st Lt. Sig. C.
OIC Message Center

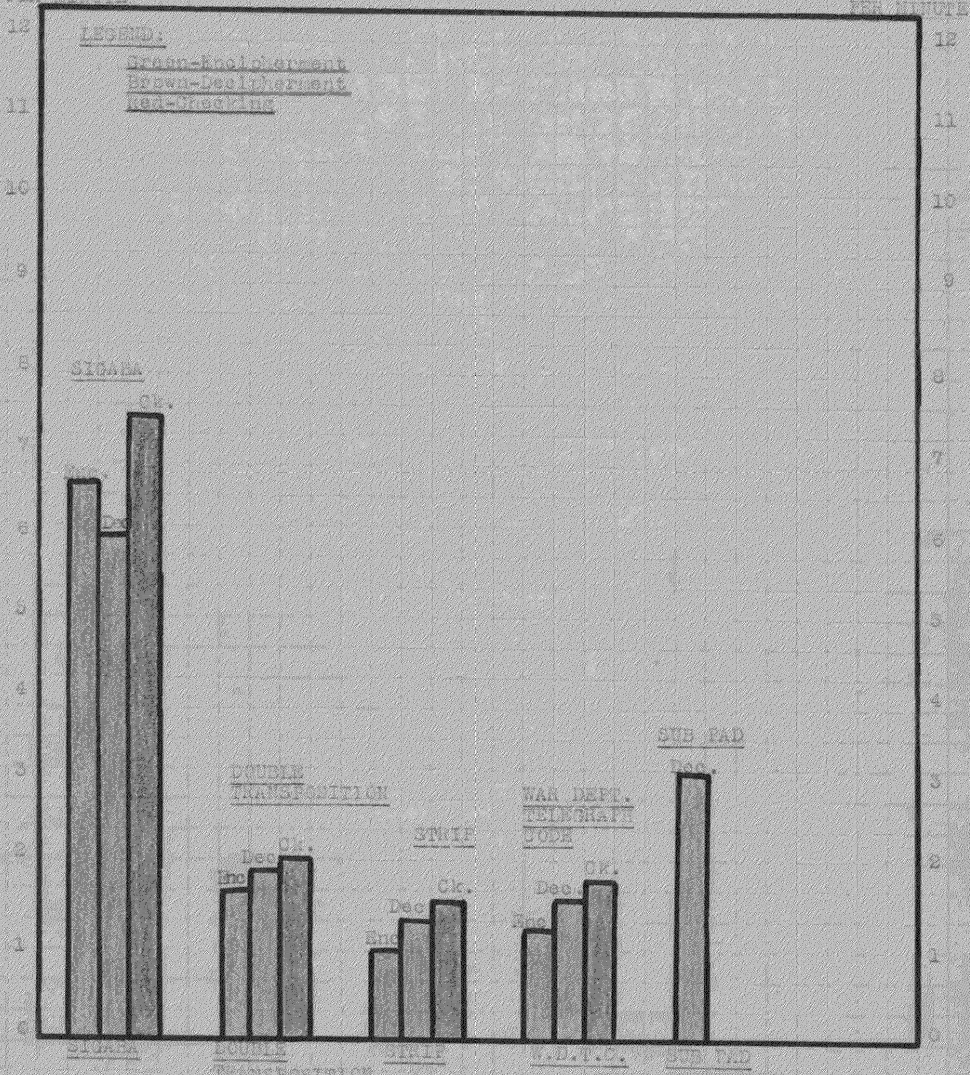
~~CONFIDENTIAL~~

COMMUNICATIONS CENTER
OPERATIONS CENTER

JULY
1943

GROUPS
PER MINUTE

GROUPS
PER MINUTE

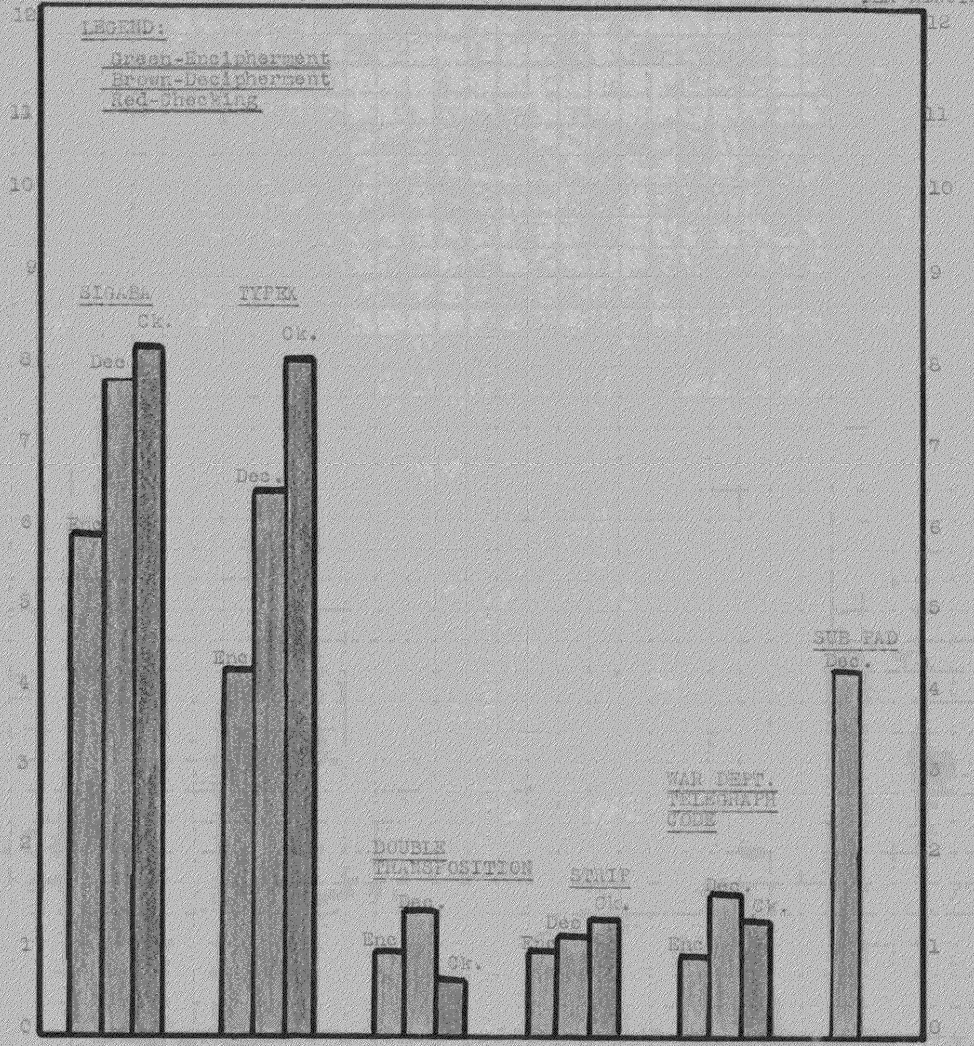


GROUPS
PER MINUTE

GROUPS
PER MINUTE

LEGEND:

- Green-Encipherment
- Brown-Decipherment
- Red-Checking



SIGABA

TYPEA

DOUBLE TRANSPOSITION

STRIP

WAR DEPT. TELEGRAPH CODE

SUB-PAD

SIGABA

TYPEA

DOUBLE TRANSPOSITION

STRIP

W.D.T.G.

SUB-PAD

MESSAGE CENTER
CODE ROOM
SEPTEMBER
1943

GROUPS
PER MINUTE

GROUPS
PER MINUTE

