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## MEMORANDUM

TO: Mr. W. F. Friedman,  
Executive Secretary  
NSA Scientific Advisory Board

FROM: S. S. Wilks

SUBJECT: Report on Visit to GCHQ  
September 9-11, 1954

DATE: December 18, 1954

I arrived in London about 10:00 A.M. on September 8 and went directly to Col. T. S. Parling's office to discuss arrangements which he had made for my proposed visit to GCHQ September 9-11. He suggested right away that it might be just as well to go to Cheltenham.

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early the morning of  
 September 9 as the I  
 afternoon or evening of  
 September 8. I accepted the  
 suggestion and during the  
 hour before lunch and with  
 the assistance of Col. Pulling's  
 secretary I made hotel  
 reservations to stay in  
 London the nights of September 8  
 and 11. She also handled  
 my hotel reservations at  
 Cheltenham, provided me with  
 information concerning  
 the schedules of train service  
 between London and Cheltenham,  
 and made a plane  
 reservation for me, <sup>to Paris</sup> on September  
 12 to catch a MATS  
 plane leaving Paris on the 12th  
 for Washington. Col. Pulling and I  
 went out to lunch at one  
 of the Clubs near Grosvenor  
 square.

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After lunch I talked with Col. Felling for more than two hours about the purpose of my visit, the U. S. military and civilian personnel stationed at G. C. H. Q., the extent of interchange between NSA and G. C. H. Q. personnel, the organization of G. C. H. Q., and other similar matters. I found him to be very alert, energetic, and enthusiastic throughout the more than four hours of time I spent with him that day.

I left London in the morning of September 9 and arrived in Cheltenham shortly after noon when I was met by one of Col. Zeller's assistants who took me straight to Col. Zeller's office.

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I spent the entire afternoon with Col. Zeller and Dr. Rutledge discussing the organization of G. C. H. Q. They went into considerable detail concerning the reorganization of G. C. H. Q. which has been announced on ~~in the~~

~~reorganization of the~~  
 on August, referring <sup>me</sup> to his memorandum of 11 August on the subject. In briefing me ~~on~~ the organization of G. C. H. Q. Colonel Zeller took up the various assignments and top people in a completely thorough manner one-by-one, indicating how the existing set up would be changed under the reorganization. Col. Zeller also gave me an excellent briefing on the U. S. military and civilian personnel.

stationed at G C H Q.

With this background of information in hand concerning G C H Q I explained in some detail that I was particularly interested in talking to the appropriate G C H Q personnel on the following subjects:

- (1) The organization of T/A effort and how closely it was integrated with C/A effort.
- (2) Problems of personnel recruitment and selection.
- (3) Problems of quantification and graphical presentation of intelligence concerning  air, sea and land military activity.
- (4) Mathematical and statistical problems arising in C/A and T/A.

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I explained that being a  
 mathematical isolationist was  
 by profession I had a  
 natural interest in (D),  
 but that as a member  
 of NSASAB and as a  
 member of the Robertson Study  
 Group I had developed  
 rather strong interests  
 in (N), (A) and (C).

With this layout of  
 interests before him, <sup>19</sup>Col.  
 Zeller and Dr. Rutledge  
 proceeded to set up  
 a series of appointments  
 for me for September 10.

Having spent the entire  
 afternoon with Col. Zeller  
 and Dr. Rutledge, I was  
 taken by Dr. Rutledge to a little  
 sherry party at his  
 home at 5:00 clock  
 at which <sup>19</sup>Col. Zeller and  
 the following G. C. 4 Q

staff members were present

[redacted] and J. Tiltman.

My first visit on [redacted] was to the office of [redacted] in charge of the [redacted] at [redacted].

He outlined the general policy for recruiting young men from the universities for the professional grades. He pointed out <sup>severely</sup> the calculus ~~similar~~ to those existing at NSA in providing able young men enough information about the work of GCHQ to enable them to make ~~an~~ sufficiently self-convincing decisions as to <sup>whether to</sup> go into the work or not. He believed that

I was accompanied by [redacted] but only on their visit. I don't all the others.

a partial answer to the  
 problem was to ~~have~~  
~~the~~ ~~work~~ ~~through~~ ~~university~~  
 work through university  
 professors who had had  
 G C H Q experience and  
 in whose <sup>advice</sup> students could  
 have confidence. ~~The~~ ~~main~~  
~~problem~~ ~~then~~ ~~was~~ ~~to~~

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 persuade more university  
 professors to spend some time  
 at G C H Q to work on  
 its problems and acquire  
 enough background to enable  
 them to give sound advice  
 to students whom they  
 knew well.

went into some detail  
 as to how the British  
 Civil Service System  
 operates. I can easily  
 see from the thoroughness  
 of their selection procedures



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why. The British Civil  
Servants, as a class,  
are so competent. I  
gained the impression  
that many of the personnel  
of GCHQ had spent  
much if not most of  
their careers in that  
work.

~~Subject: [unclear] (~~  
~~Security [unclear]~~  
~~Case [unclear]~~

In reply to my  
 inquiring concerning tests and  
 examinations for the  
 selection of C/A and  
 T/A personnel he  
 stated that they had  
 begun some experimental  
 testing with a series  
 of tests known as  
 Progressive Matrices and  
 referred me to Mr.

[redacted]

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for ~~the~~ details  
 concerning the results  
 of these tests, [redacted]  
 showed me some

results which he had  
 obtained by giving the  
 tests to personnel  
 at GCHQ as well  
 as ~~some~~ new applicants.  
 He was quite optimistic.

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about the possibilities of  
 using the progress and  
 -methods to improve  
 their selection procedures  
 for T/A and C/A  
 personnel. In my own  
 opinion NSA would  
do well to do some  
experimental testing

with this type of test.

(validity) →

If this test has some  
 validity for selection of  
 T/A and C/A personnel  
 or if it can be further  
 developed to have significant  
 validity, it <sup>we</sup> could <sup>I believe</sup> eventually  
 contribute a great deal  
 to improving C/A and C/A  
 effectiveness at NSA.

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My second visit was  
 to ~~see~~   
 who impressed me as  
 a most capable man.  
 He is the man perhaps  
 most responsible for  
 developing the philosophy  
 on which the reorganization  
 of G. C. H. Q. is based.  
 He went into considerable  
 detail concerning the  
 reasons for the changes.  
 I don't think I need go  
 into a full statement  
 of the reasons for ~~the~~  
 the change and the principles  
 which <sup>were</sup> followed, since they have  
 been set forth in  
 Col. Zeller's excellent  
 memorandum of 11 August  
 1954.  did  
 emphasize, however,  
 the particular importance

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of the new Division J (deputed  
 to the [redacted] problem). He  
 was strongly convinced  
 that by focusing the  
 T/A, C/A, and other  
 skills ~~to~~ on the  
 [redacted] problem GCHQ's  
 effectiveness in dealing  
 with that ~~problem~~  
 problem would be considerably  
 increased. He referred  
 specifically to the  
 success with which  
 the [redacted] ~~was~~  
 [redacted] was having ~~with~~  
 respect to ~~the~~  
 the development of  
 intelligence concerning the  
 [redacted] Navy. He looked  
 forward to similar  
 approaches to other segments  
 of the [redacted] machinery.

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my third visit was  
to the office of [redacted]

[redacted]

I discussed  
various general features  
of the G C H Q organization.  
I also discussed with me  
John's view of the role of NSA SAB  
and he showed a good  
deal of interest in the idea  
of such a Board of outside  
scientists and wondered  
whether this is something  
G C H Q should consider.  
I should say that I  
also talked with [redacted]

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[redacted] about  
NSA SAB, its functions  
how it operated, and  
so on. He also showed  
some interest in this idea.  
I am sorry I did not  
get to see [redacted]

He was away at the time.

He referred to an internal advisory  
committee at G C H Q.

This is one of the problems I am faced with in the Report.

In the afternoon,  
my first visit was with  
[redacted] head

of the Reporting Division. I  
explained to him that  
I was particularly interested  
to ~~know~~ find out what  
progress had been  
made in the development

of indices of [redacted]  
air, navy and army  
activity which could  
be ~~graphed~~ inhibited  
or graphed in time.

He said ~~his~~ his  
division had given  
a great deal of attention  
to this problem and  
that in his opinion the

[redacted]

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had made considerable progress on it. He immediately arranged for me to visit that group. Before making the visit however,

[redacted]

gave me an excellent briefing on their ~~reporting~~ reporting procedures, including descriptions ~~and~~ and ~~and~~ examples of their various ~~series of~~ reports.

[redacted]

Learning office Dr. Rutledge and I went over to visit the

[redacted]

where we spent nearly an hour. I was very much impressed by a graphical method ~~they were developing for~~ presently

[redacted]

usual activity of all kinds as a function





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I believe, however, that it  
would be useful if  
some of our <sup>NSA</sup> personnel  
concerned with the  
analogue problem for  
~~the~~ [redacted] air activity  
could have some contact  
with that group, since  
the presentation problem  
~~is~~ for [redacted] naval  
and air activity ~~is~~  
have many points of similarity

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[redacted]

were away  
~~of~~ when I  
 was at GCHQ  
 and hence I did  
 not get a good  
 first hand account  
 of T/A activity at  
 GCHQ. I did, however,  
 pick up a good many  
 side lights on

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As a matter of fact, ~~as~~  
 after my visit at  
 G C H Q and remembering the  
 great interest in the work of G C H Q on the part  
 of AFSS which I discovered in my visit  
 to AFSS in the  
 summer of 1953  
 in connection with  
 the ~~Board~~ work of  
 the Robertson Study Group  
 I ~~have~~ been wondering whether  
 there is enough liaison  
 between AFSS and G C H Q.  
 I would suggest serious  
 consideration of more contact  
 between these two groups than  
 seems to exist at present.

I found a good deal of similarity  
 of outlook on the quantification  
 problem between   
 of G C H Q and some of the  
 staff members at AFSS.

After my visit with  
 the [redacted] working group [redacted]  
 I returned to [redacted]  
 office for further  
 discussion about the problems  
 of presentation. He is very much  
 interested in the problem  
 of developing sound  
 indices of [redacted] naval,  
 air and land activity  
 and the presentation of  
 the information. He is keenly  
 aware ~~of the~~  
 of the pitfalls in developing  
 such indices, and of the  
 necessity ~~for~~ developing the  
~~such~~ indices through  
 close cooperation between  
 those responsible for  
 developing the information  
 through analysis and  
 those responsible for reporting.

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At this juncture it was 5 o'clock. I went home with <sup>the</sup> Col. Zeller and had an excellent dinner and delightful evening with <sup>the</sup> Col. and Mrs. Zeller. Among other things we discovered that all three of us were graduate students at the University of Iowa, and of course we had many things to talk about regarding the University of Iowa!

On the morning of September 11 (Saturday) I spent nearly three hours with <sup>Dr.</sup> I. J. Good talking about many of the ~~theoretical~~ theoretical and statistical problems which have arisen in the work

I am very much impressed by  
Dr. Good's ability in my opinion  
it would be very useful for him  
to spend a few months at NSA  
with Dr. Facilis Group.

of his group. As these  
problems are all  
rather technical  
I shall not attempt  
to discuss them here.

Unfortunately, I did  
not see [redacted]

He was playing chess  
in a tournament in  
Amsterdam at the time.

I really regret to  
say that [redacted]

[redacted]

[redacted] there  
away when I was at  
GC HQ and hence  
I did not have an  
opportunity to get a  
good first hand  
account of T/A  
activity at GC HQ.

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I did, however, pick up a good many insights on ~~it~~ it from Messrs.

[redacted] and Good. I gained the impression that there is a good deal ~~of~~ <sup>more</sup> integration of T/A and C/A effort at GCHQ than at NSA, and that in the new GCHQ set up there will be even more integration.

I left Cheltenham in the early afternoon of September 11, and after an overnight stay in London I flew to Paris where I caught a MATS plane at 6:00 P.M. on September 12, arriving

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back in Washington, D.C.  
the morning of September 13.

Finally, I should mention that I actually left Washington on August 31 by MATS, arriving in Paris on September 1. I went to Amsterdam on September 2 and spent five days at the International Congress of Mathematicians before ~~going to GCHQ~~ making my visit to GCHQ. I had originally planned to make the GCHQ visit first but found that at that time an even larger number of the State personnel at GCHQ would have been away.



In closing the memorandum  
I want to take this  
opportunity to express  
my appreciation to  
Captain [redacted] [redacted]  
on this side and  
to Col. Pulling, Col. Zeller  
and Dr. Rutledge for  
making the arrangements  
required in making the trip.  
The arrangements were  
excellent in every respect.