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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, ^{to Paris} 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 GC 11 Q, the extent of interchange between NSA and GC 11 Q personnel, the organization of GC 11 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 7, referring ^{me} 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.

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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 (A), (B) and (C).

With this layout of
 interests before him, ¹⁹Col.
 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 ¹⁹Col. 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 ^{severely} 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 ^{whether to} 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 ^{advice} students could
 have confidence. ~~The~~ ~~main~~
~~problem~~ ~~was~~ ~~to~~ ~~persuade~~ ~~more~~ ~~university~~

problem ~~was~~ ~~to~~ ~~persuade~~ ~~more~~ ~~university~~ PL 86-36/50 USC 3605
 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
 -mistakes 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 ^{we} could ^{I believe} eventually
 contribute a great deal
 to improving T/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 ^{were} 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 ~~in~~ 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 on Progress.

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~~ exhibited
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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(Unfortunately, I was unable to learn whether similar work is going on with respect to ~~the~~ ~~in~~ a country.

of time. It seems to me that this development not only has possibilities for giving a much better visual ~~summary~~ account of what is going on with respect to ~~the~~ Naval activity — but has equally good possibilities for ~~the~~ air activity.

There are, of course, more than a dozen U. S. ~~officers~~ Naval officers in the ~~country~~ and I presume they will bring back ^{to NSA} some of the ideas being developed there. ~~for~~ ~~the~~ ~~purpose~~ ~~of~~ ~~the~~ ~~program~~ ~~in~~ ~~the~~ ~~country~~ ~~but~~

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I believe, however, that it
would be useful if
some of our ^{NSA} 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 ^{the} Col. Zeller and had an excellent dinner and delightful evening with ^{the} 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 ^{Dr.} 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]

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[redacted] then
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.

and Good. I gained the impression that there is a good deal ~~of~~ ^{more} 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 staff 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.