

SCAG

MEMO ROUTING SLIP		NEVER USE FOR APPROVALS, CONCURRENCES, OR SIGNATURE ACTIONS	
1	NAME OR TITLE Dr. Kullback	INITIALS	CIRCULATE
	ORGANIZATION AND LOCATION Chief, R/D	DATE	COORDINATION
2			FILE
3			INFORMATION
			NECESSARY ACTION
			NOTE AND RETURN
4			SEE ME
			SIGNATURE
REMARKS			
<p>1. Herein letters I mentioned at EXSAB meeting. Suggest you extract proposals for research items.</p> <p>2. Please show to Dr. Campaigne, other EXSAB member from R/D and return promptly.</p> <p>3. I have no objection to your showing them to Dr. Fackins, Mr. Dingler, Mr. Barlow, and Mr. Miller - if you wish to.</p>			
FROM NAME OR TITLE Friedman		DATE 2 Oct 52	
ORGANIZATION AND LOCATION		TELEPHONE	

Serial: 2284
8 SEP 1952

Mr. John H. Howard
311 Wyndmoor Road
Springfield, Del. Co., Penna.

Dear John:

In your letter to Dr. Engstrom, answering some questions he asked in regard to SCAG affairs, you indicated that, if AFSA would really like to have some suggestions on research and development programs, you would be very pleased to think about this matter and submit some ideas.

Since your letter also stated that you were on the point of taking off on your vacation, I hesitated to write you immediately on its receipt from Dr. Engstrom because I did not feel it wise to give you something to think about and possibly disturb your enjoyment of some such activity as fishing or just loafing.

However, I assume that you are back at work now and, therefore, am writing to say that we do indeed want your suggestions and assure you in advance of our appreciation of your efforts along those lines.

For your convenience and on the assumption that what you will submit may be of fairly high classification, I am enclosing suitable franked envelopes properly addressed.

Hoping that you derived much benefit from your vacation and are in fine fettle, I am,

Sincerely,

WILLIAM F. FRIEDMAN
Consultant

W.F.Friedman/eby/25 Sept 52
Consultant/60493

MEMO FOR RECORD: Self-explanatory.

WILLIAM F. FRIEDMAN
CONSULTANT

Burroughs



BURROUGHS ADDING MACHINE COMPANY • RESEARCH DIVISION

511 NORTH BROAD STREET • PHILADELPHIA 23, PENNA

Dr. H. T. Engstrom, Vice President
Engineering Research Associates, Inc.
507 Eighteenth St. South
Arlington Va.

Dear Dr. Engstrom:

This is in reply to your letter of 17 July 1952
requesting personal opinions from SCAG members
on three points:

1st Point I agree that ^{(the intentions of the report were that} the large scale
operations of AFSA should remain under
military control and that the proposed Technical
Director should be responsible for Research and
Development only.

2nd Point. In my opinion, there was never
intention of the SCAG group to state unequivocally that
there is a clear cut promise of success on certain problems.
Rather, it was clear that there were a number of
promising approaches which were not out of reason
and which were not receiving intensive exploratory
work and development effort.

3rd Point I would like very much to suggest
some research and development programs but I am not at present
in a position to think this matter through carefully due to

pressure of other work.

If the Agency would really like to have some suggestions of research and development programs, I would be very pleased to think about this matter and submit some ideas.

I'm off on my vacation today so I am rushing you this letter as a partial answer to your query.

Very truly yours

John Howard

Should we get them?
 e

~~SECRET~~ ENGINEERING RESEARCH ASSOCIATES, INC.
~~SECURITY INFORMATION~~ 507 EIGHTEENTH STREET, SOUTH
ARLINGTON, VIRGINIA

OFFICE OF THE
VICE PRESIDENT

15 August 1952

Mr. William F. Friedman, Consultant
Department of Defense
Armed Forces Security Agency
Washington 25, D. C.

Dear Mr. Friedman:

I am enclosing herewith the originals of replies to my letter of 17 July. I have not had replies from Dr. Robertson and Mr. Desch.

The opinions concerning the two major points in question are not unanimous. Dr. Potter, of Bell Laboratories, and Mr. McPherson, of IBM, tend toward the inclusion of certain aspects of operations under the civilian technical director. The consensus concerning the optimistic statement of the main problem appears to me to approach the statement as revised by AFSA.

If I can be of further assistance in this connection, please let me know.

Sincerely yours,

H. T. Engstrom

H. T. Engstrom

HTE:nlb
Enclosures (8)

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Sections 793 and 794. The transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

~~SECRET~~

WILLIAM WEBSTER
441 STUART STREET
BOSTON 16, MASSACHUSETTS

August 8, 1952

Dr. H. T. Engstrom, Vice President
Engineering Research Associates, Inc.
507 Eighteenth Street, South
Arlington, Virginia

Dear Dr. Engstrom:

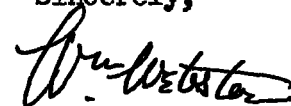
This is in answer to your letter of July 17 and I shall attempt to word it so as to avoid the necessity of classifying and hope that this does not also succeed in making it unintelligible.

First, in connection with your first major point, I agree with Speakman on the narrower responsibility. Second, I agree with most personnel in the less optimistic position.

I am sorry that on account of my absence from Boston this reply has been so long delayed and hope it is not so late as to have missed the boat completely.

Best personal regards.

Sincerely,



~~SECRET SECURITY INFORMATION~~

BELL TELEPHONE LABORATORIES

INCORPORATED

MURRAY HILL LABORATORY

MURRAY HILL, NEW JERSEY

SUMMIT 6-6000

August 8, 1952

DR. H. T. ENGSTROM
Engineering Research Associates, Inc.
507 Eighteenth Street South
Arlington, Virginia

Dear Dr. Engstrom:

With regard to the questions raised in your letter of July 17 my opinion agrees with yours on the first point. On the second question I feel we can certainly only say, with our limited knowledge of the problem, that there is sufficient good chance of a solution to justify increasing considerably the present effort toward this solution. It is clearly a gamble, but the stakes are high enough to make it worth while.

Sincerely yours,

Claude Shannon

CLAUDE SHANNON

1445-CS-MAR

~~SECRET~~~~SECURITY INFORMATION~~

THE INSTITUTE FOR ADVANCED STUDY
PRINCETON, NEW JERSEY

SCHOOL OF MATHEMATICS

July 29, 1952

Dear Howard:

Thank you for your letter of July 17 which I found here after my arrival two days ago. In the meantime, as you know, I saw the letters that you had sent to Stewart Cairns and Tommy Tompkins, and discussed the answer with them. Thus, the matter is taken care of to the extent to which you may need formal answers.

Hoping that we will see each other again in the not too distant future, I am,

Sincerely yours,



John von Neumann

JvN:eg

Dr. Howard T. Engstrom
Engineering Research Associates, Inc.
507 Eighteenth Street, South
Arlington, Virginia

INTERNATIONAL BUSINESS MACHINES CORPORATION
590 MADISON AVENUE
NEW YORK 22, N. Y.

OFFICE OF
VICE PRESIDENT

July 29, 1952
Registered Mail--
Return Receipt Requested

Mr. H. T. Engstrom, Vice President
Engineering Research Associates, Inc.
507 - 18th Street South
Arlington, Virginia

Dear Howard:

In reply to your letter of July 17, 1952, on point one my recollection is that we had in mind and discussed both a civilian technical director in charge of all centralized activities including research, development, and operation; and a civilian director of research. Many of the reasons which lead to consideration of this point were common to all three activities if not most important in the operation area.

As to what can be accomplished on your second point, my feeling was that we were far from having exhausted the capabilities of high-speed electronic machines, and that the impression of people who knew more than I was that even with existing equipment results should be secured.

You asked for some suggestions as to specific research programs to be undertaken. I would suggest:

1. Any radical or long-shot ideas on methods or machines
2. Basic studies of behavior and mathematical properties of devices used or potentially useable in this field
3. Mathematical studies including matrices and machine methods of evaluation
4. Statistical studies including new indices for characterizing patterns found in material
5. Development of generalized machines or machine components especially applicable or efficient in this field.

If I can be of further help, please let me know.

Yours very truly

John
John C. McPherson
Vice President

JCMcP:im

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE LAWS, TITLE 18 U. S. C., SECTIONS 793 AND 794. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO ANY AUTHORIZED PERSON IS PROHIBITED BY LAW.

20630 Pacific Coast Highway
Malibu, California
25 July 1952.

Dr. Howard T. Engstrom
Engineering Research Associates Inc
507 18th Street South
Arlington, Virginia.

Dear Howard:

We have received letters from you dated 17 July. Since Professor von Neumann was also in this area while we were considering our answer, we consulted him (under the assumption that a copy had probably been addressed to him elsewhere). We believe that he concurs fully in our answer here, which he helped prepare.

We agree with your view that the civilian director should be in charge of research and development but not necessarily in charge of operations.

As far as further and expanded efforts on the main problem are concerned, it seems to us that they are justified.

We have been handicapped in making this reply by the fact that we have not seen a copy of the final SCAG report.

Respectfully,

Stewart

S. S. Cairns

Tommy

C. Tompkins.

Cc John von Neumann

~~SECURITY INFORMATION~~

BELL TELEPHONE LABORATORIES

INCORPORATED

MURRAY HILL LABORATORY

MURRAY HILL, NEW JERSEY

SUMMIT 6-6000

~~SECRET~~

July 24, 1952

DR. H. T. ENGSTROM, Vice President
Engineering Research Associates, Inc
507 Eighteenth Street, South
Arlington, Virginia

Dear Dr. Engstrom:

Below under separate headings are replies to the three questions raised in your letter of July 17, 1952.

1. Concerning responsibilities of the Senior Civilian Technical Director.

While appreciating the arguments for separating research and development from operations I have not been entirely convinced this is the best arrangement organization-wise. The "operations" organization is essentially a vast machine, designed to perform certain functions. Of course, many functions of this machine are routine but this is fundamentally incidental. A first purpose of AFSA research and development is to make this a most effective machine. Therefore it would seem highly important that top level supervision extend across the board in a way as to tie research, development and operations together technically. This is not contrary to the principle that operations are a responsibility of the military. Responsibility of technical supervision on the operations side would be confined to technical (including human) performance of the "machine" rather than its use. Similar cases, wherein technical support should be very close to operations, are apparently becoming rather common in modern warfare.

2. Statement concerning solution of the main problem

Based on pros and cons expressed by others better qualified to have a firm opinion, I would recommend we use the words: "There is sufficient promise of success to warrant a considerable extension of the present effort".

~~SECRET~~~~SECURITY INFORMATION~~

~~SECURITY INFORMATION~~

Dr. H. T. Engstrom - 2

~~SECRET~~3. Regarding a research program

The responsibilities of this group would presumably include initiation and supervision of outside research contracts as well as research carried on within the AFSA organization. Some of the items below could be carried on in either or both ways. Order is not intended to indicate priority and the list is illustrative and not complete,

- (A) Research to speed up present comparison and computational processes by a substantial factor.
- (B) Research on broad band recording.
- (C) Modernization of intercept methods (Cooperative study with other groups concerned). Extending up into microwave range and including both plane search and long range ground systems.
- (D) Basic studies of ways to process (sort, classify etc.) intercept information.
- (E) Research toward new circuit elements, such as transistors of special types, new storage schemes, new commutation devices, etc.
- (F) Research toward new circuitry, particularly miniaturization as applied to special problems.
- (G) Studies of new cyclic and random key sources.
- (H) Studies of narrow-band telephone, including voice-telegraphy.
- (I) Various studies in psychological area -
 - (1) Human factor in "busts" and ways to minimize. (I believe there are very important possibilities here).
 - (2) A broad study of the relationship between humans and machines in the security area.
 - (3) Visits to various laboratories where psychological research is going on and accumulation of background knowledge pertinent to AFSA problems.

~~SECURITY INFORMATION~~
~~SECRET~~

~~SECURITY INFORMATION~~

Dr. H. T. Engstrom - 3

~~SECRET~~

- (4) Various project studies based upon current problems.
- (5) From the above, formulation of principles, test methodology and simulation procedures applying to the AFSA situation.]

Sincerely yours,



R. K. POTTER

~~SECRET~~~~SECURITY INFORMATION~~



REF ID: A65869
~~SECURITY INFORMATION~~
~~SECRET~~
RESEARCH AND DEVELOPMENT BOARD
WASHINGTON 25, D. C.

Log No. 52-1663
Copy # 1 of 5 copies

JUL 23 1952

1/6
Mr. Howard T. Engstrom
Engineering Research Associates, Inc.
507 Eighteenth Street, South
Arlington, Virginia

Dear Howard:

Mr. Speakman has received your letter of 17 July 1952. He barely had time to read it and hand it to me before leaving again on out-of-town affairs. He hopes you will be so kind as to accept this letter as relaying his thoughts on the matter you discussed.

You have correctly stated that the Technical Director of SCAG origin would be responsible for research and development only, would report to the Director, AFSA, and that the large-scale operations of AFSA would remain under military control.

As for the second matter you mentioned -- that of the clear-out promise of success -- we still feel that this was the sense of the SCAG. This in itself calls for "considerable augmentation and extension of the present effort" to quote your letter in part. We are not surprised that some AFSA personnel feel the statement in the report was overly optimistic, but the SCAG report was more concerned with its view of the situation than with AFSA's reactions.

I have read your proposal for setting up the new offices and I feel it is sound. Only trial can disclose any small revisions or re-adjustments that might be required. I do not think that Mr. Speakman has as yet any firm thoughts on the technical nature of research programs which this group should undertake. I suspect he would be pleased to leave this to persons in closer touch with technical aspects.

Sincerely,

Dean Post

DEAN POST

~~SECURITY INFORMATION~~
~~SECRET~~