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(classified until filled)

CLASSIFIED/NON-CLASSIFIED TRANSMITTAL and RECEIPT

NATIONAL SECURITY AGENCY
Washington 25, D.C.

TO	SERIAL OR CONTROL NUMBER
	R/D 31-56
Mr. William F. Friedman 310 Second Street, S. E. Washington, D. C.	DATE
	1 October 1956

1. IT IS REQUESTED THAT RECEIPT FOR THIS MATERIAL BE ACKNOWLEDGED BY EXECUTING AND RETURNING THE BELOW RECEIPT.
2. THIS LETTER MAY BE DOWNGRADED TO Unclassified WHEN ENCLOSURES ARE REMOVED.

INCLOSURES:

EXSAB Serial 41-56 w/incl: Minutes and agenda

This material contains information affecting the national defense of the United States within the meaning of the espionage laws, Title 18, U.S.C., Secs. 793, 794 and 798, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

Declassified and approved for
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pursuant to E.O. 13526

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for S. Cronise

Harriet R. Seungie

SECRETNATIONAL SECURITY AGENCY
WASHINGTON 25, D. C.Serial: EXSAB 41-56
1 October 1956Mr. William F. Friedman
310 Second Street, S. E.
Washington, D. C.

Dear Mr. Friedman:

Inclosed is a copy of the agenda for the forthcoming meeting of the Scientific Advisory Board. Also inclosed for your information is a copy of the minutes of the last Board meeting.

Sincerely,

A handwritten signature in cursive script, appearing to read "S. Kullback".

S. KULLBACK
Executive Secretary
NSA Scientific Advisory Board2 Incls:
a/s**SECRET**

Declassify when inclosures are removed

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NATIONAL SECURITY AGENCY SCIENTIFIC ADVISORY BOARD

AGENDA

8 and 9 OCTOBER 1956 at 0900

The meeting on 8 October will be held in Room 17-131 at the Naval Security Station and on 9 October in the Situation Room, B Building at Arlington Hall Station.

Opening Remarks by Lieutenant General Ralph J. Canine.

Review and Approval of Minutes of 15-17 February 1956 meetings.

Report on Board and Panel Membership.

Expanded Effort:

Report on Preliminary Discussions with the Office of
the Secretary of Defense, R/D. Dr. R. A. Leibler

Review of NSA's Recommendations to the Secretary of
Defense regarding expanded effort. Report on action
taken and progress to date on each project. Captain J. S. Holtwick, USN

Report on final discussions and implementation of
the MWDP assistance. Dr. R. A. Leibler

Report on the September Conference. Dr. A. Sinkov

Independent effort. Dr. A. Sinkov

High Speed System Dr. H. T. Engstrom

Report on Reorganization of PROD
(Time permitting) Brig. Gen. W. M. Burgess, USAF

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MINUTES OF THE NSA SCIENTIFIC ADVISORY BOARD MEETING
HELD ON 15 FEBRUARY 1956

1. The following were present at the meeting.

a. Board Members:

Mr. J. C. McPherson, Chairman
Dr. W. R. G. Baker
Dr. Stewart S. Cairns
Dr. H. T. Engstrom
Mr. J. W. Forrester
Mr. W. F. Friedman
Mr. A. W. Horton

b. NSA Executive Group for Board Affairs:

Dr. S. Kullback, Executive Secretary
Brig. General W. M. Burgess, USAF
Colonel K. I. Davis, USA
Captain J. S. Holtwick, USN
Captain A. Enderlin, USN
Dr. A. Sinkov

c. Department of Defense Observer:

General G. B. Erskine

d. NSA Observers:

Lt. General R. J. Canine, USA
Colonel Duncan Sinclair, USA
Colonel Gordon W. Wildes, USAF
Dr. H. H. Campaigne
Major N. R. Dicks, USAF
Mr. E. N. Dingley, Jr.
Captain I. T. McDonald, USAF
LCDR J. W. Pearson, USN
Dr. L. E. Shinn

e. Recorder:

Miss Catherine Johnson

f. Mr. H. P. Corwith sent the following telegram to the Executive Secretary, NSASAB: "Regret unable to attend NSA meetings February 15, 16 and 17 due to illness."

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2. The first session convened at 1300, 15 February 1956. General Canine opened the session with a welcoming address and a review of some of the highlights of the preceding year.

3. The Chairman, Mr. McPherson, proposed that the minutes of the previous meeting be approved as presented, which motion was seconded and carried.

4. Mr. McPherson reviewed the changes in the Board membership since the last meeting. Mr. Quarles found it necessary to resign because of his change in position from Assistant Secretary of Defense, Research and Development, to Secretary of the Air Force. Dr. Furnas, Assistant Secretary of Defense, Research and Development, has accepted membership on NSASAB. Mr. Friedman was welcomed as a new member of the Scientific Advisory Board as was also Professor Forrester.

5. Colonel Davis, Deputy Director, COMSEC, outlined the mission of the NSA Office of Communications Security and briefly reviewed the organization structure of the Office. He gave the major breakdown of the budget based on COMSEC's '57 budget estimate. In regard to the technical progress made by COMSEC during the past year, Colonel Davis reported on the status of various equipments including teletype security equipment, cifax equipment, ciphony equipment and several rotors.

6. General Burgess, Deputy Director, PROD, reported on the general activities of the Office of Production during the past year and the plans for the FY '57 program. He enumerated the requirements placed on NSA by USCIB and discussed each objective, explaining the requirement and the action being taken. General Burgess concluded his discussion by pointing out the specific areas in which it is planned to expand or redistribute the emphasis in order to increase the COMINT effort.

7. Dr. Sinkov, Assistant Director, PROD, discussed the pros and cons of a "Manhattan" type of project for COMINT.

8. Dr. Kullback, Assistant Director, R/D, presented a report covering the activities of interest in research and development. Using charts, Dr. Kullback brought the group up-to-date on the organization of the Office of Research and Development, the personnel situation and the budget, including allocation of 1956 and 1957 funds. He discussed the highlights of 1955 by listing the equipments introduced or being tested and also listing the outstanding accomplishments during the past year. In conclusion plans for 1956 were reviewed by Dr. Kullback.

9. Dr. Shinn, Plans and Operations Division, reviewed foreign collaboration for the Board. He discussed briefly the arrangements and agreements which NSA has with the COMINT organizations of the British Commonwealth.

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10. Colonel Sinclair, Chief, Personnel Division, explained what had been done during the past year to increase the effectiveness of the College Recruitment Program. He reported that 422 college graduates had been hired during 1955. The new psychometric testing program was described by Colonel Sinclair and also the plans of the Psychological Research Section.

11. Major Dicks, Office of the Comptroller, reviewed progress on the construction of the new building at Fort Meade. Schematic layouts were used to show the planned arrangement of space. He reported that the space formerly assigned to COMSEC was being reallocated since the Director had decided that COMSEC would remain at NSS. Major Dicks discussed briefly the standardization of office furniture and accessories to be used and the color styling of the new building.

12. Mr. McPherson reviewed the activities of the panels and individual panel members of the NSASAB panel structure.

This concluded the first session.

MINUTES OF THE NSA SCIENTIFIC ADVISORY BOARD MEETING
HELD ON 16 FEBRUARY 1956

1. The following were present at the meeting.

a. Board Members:

Mr. J. C. McPherson, Chairman
Dr. W. R. G. Baker
Dr. Stewart S. Cairns
Dr. H. T. Engstrom
Mr. J. W. Forrester
Mr. A. W. Horton
Dr. H. P. Robertson

b. NSA Executive Group for Board Affairs:

Dr. S. Kullback, Executive Secretary
Brig. General W. M. Burgess, USAF
Captain J. S. Holtwick, USN
Colonel K. I. Davis, USA
Captain A. Enderlin, USN
Dr. A. Sinkov

c. NSA Observers:

Dr. H. H. Campaigne
Mr. E. N. Dingley, Jr.
Mr. A. H. Hausman
Mr. D. L. Hogan
Mr. L. W. Lathroum
Captain I. T. McDonald, USAF
LCDR J. W. Pearson, USN
CDR Simon Ramey, USN

d. Recorder:

Miss Catherine Johnson

2. The second session convened at 0900 16 February 1956.

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3. Mr. Hausman, Chief of the Intercept Equipment Division, discussed the intercept portion contained in PHASE I, II and III of the report "Mechanization in Support of COMINT". He presented the problem as it affects the Intercept Equipment Division and indicated specific cases in which improvement is sought in our capability to intercept and forward target transmissions such as RFP, Morse and Scrambler. Mr. Hausman also discussed the category of projects being undertaken in anticipation of future intercept requirements and projects under study to solve some of the problems with which the Intercept Equipment Division is currently concerned.

4. Mr. Hogan's discussion of "Mechanization in Support of COMINT" concerned the analytical machine portion of the report. He called the group's attention to certain papers contained in PHASE III which give suggestions for solution of problems concerned with forward echelon processing and forwarding. He also reviewed briefly certain other papers contained in PHASE III dealing with data processing equipments, data handling equipment and particularly the problem of the need for increased speed in machines.

5. Mr. Lathroum of the Analytic Equipment Division reported that a group has been set up to work on the programming aspects of PHASE III. He discussed the work the group is doing on automatic programming and indicated that some progress is being made in the development of a compiler which will take a code and produce the computer program for the machine automatically. Mr. Lathroum presented several other problems with which his group is concerned: (1) Studies in forming a symbolic representation or symbolic language for use in cryptanalysis, (2) Possibility of using visual display on a machine, (3) Development of characteristics for universal or standard tape systems from the functional point of view, (4) A system of automatic editing.

6. Mr. McPherson opened the meeting to proposals for problems to be considered by the Scientific Advisory Board and its panels. Dr. Sinkov presented several proposals and discussed each briefly. He felt that one problem on which the Board could give advice would be consideration of the essential requirements for mechanization of intercept. He mentioned several other problems which would be of interest: (1) Study of the end product in recording procedures in intercept, (2) Mechanization of Wave Propagation predictions, (3) Applications of the theory of stochastic processes to key analysis. Dr. Kullback discussed two problems which he felt would be appropriate to present to the Mathematics Panel for study: (1) Review of the SCAMP Program, and (2) Consideration of the activities of the Mathematical Research Division.

7. The meeting was recessed at 1130 for a meeting with General Canine in his office.

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8. The afternoon session was opened with a review by Captain Enderlin, Chief of the Office of Communications, of the present communication situation in NSA and plans for the future. He pointed out that a program of mechanization of communication facilities is being pursued and reported that it is planned to establish automatic switching centers in six or eight places around the world. Captain Enderlin discussed the plans for the communication installation at Fort Meade pointing out that many of the operations would be mechanical. After discussing some of the technical matters concerned with communications operations, Captain Enderlin explained that one real problem in the communications field was the great lack of personnel possessing technical skills and experience to operate the communications equipment.

9. Captain Holtwick, Deputy Chief of Staff/Plans and Operations, gave a brief run-down on the draft of the Agency Long Range Estimate. Discussion included in particular what it was hoped the Board would contribute to improvements in the long range estimate.

10. CDR Ramey, Office of Collection, presented some background information on the use of MF/HF radio links and the expansion of non-U.S. VHF/UHF communications. From a chart he showed current trends in the use of VHF and UHF and outlined the problems with which NSA is faced in obtaining this intercept. He reviewed the steps which have been taken to overcome some of them and accomplishments which still have to be made in this field.

11. Mr. Hausman, Chief of the Intercept Equipment Division, supplemented CDR Ramey's remarks insofar as the research and development and technical search aspects of the VHF/UHF intercept problem are concerned. He described the work his Division did in the search operation for links in one area and plans for future work in the VHF field.

12. Mr. McPherson brought Dr. Robertson, who had arrived for the afternoon session, up-to-date on the NSASAB discussions so far.

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MINUTES OF THE NSA SCIENTIFIC ADVISORY BOARD MEETING
HELD ON 17 FEBRUARY 1956

1. The following were present at the meeting.

a. Board Members:

Mr. J. C. McPherson, Chairman
Dr. W. R. G. Baker
Dr. Stewart S. Cairns
Dr. H. T. Engstrom
Mr. J. W. Forrester
Mr. W. F. Friedman
Dr. Clifford C. Furnas
Dr. H. P. Robertson

b. NSA Executive Group for Board Affairs:

Dr. S. Kullback, Executive Secretary
Brig. General W. M. Burgess, USAF
Colonel K. I. Davis, USA
Captain J. S. Holtwick, USN
Captain A. Enderlin, USN
Dr. A. Sinkov

c. Department of Defense Observer:

Mr. Dean Post

d. NSA Observers:

Colonel Gordon W. Wildes, USAF
Dr. H. H. Campaigne
Mr. O. R. Kirby
Captain I. T. McDonald, USAF
LCDR J. W. Pearson, USN

e. Recorder:

Miss Catherine Johnson

2. The third session convened at 0900 17 February 1956. Captain Holtwick, Deputy Chief of Staff/Plans and Operations, opened a discussion on the Robertson Report and the status of actions taken to implement the recommendations of the Robertson Report. There was a lively discussion,

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in which all participated, on the report itself and the implementing actions. A detailed record of these discussions is contained in the transcript of the minutes.

3. In the afternoon session Dr. Robertson proposed the following statement which was approved by the Scientific Advisory Board:

The Board expresses great satisfaction with the reception accorded the Report of the Special Study Group on "The Potentialities of COMINT for Strategic Warning", and with the actions taken by the Agency in response to its recommendations. The Board concurs with the recommendation that the January 1956 report presented thereon be accepted as the final report dealing with the SSG effort as such. At the same time the Board re-affirms its interest in the continuing efforts of the Agency in the fields involved, and invites the Agency to call upon it for advisory assistance in the solution of problems facing it.

4. The Board discussed the proposals presented during the preceding day's session in order to clarify the requirements and evaluate them as to the nature of possible Board action. It was agreed that, if requested to do so by the Director, NSA, or Executive Secretary, NSASAB, members of the Mathematics Panel would make the following studies:

a. Review of the SCAMP Program.

(1) With the concurrence of the Board the Chairman indicated that after Professor Wilks returns in the Fall he would be asked to form a group to conduct this review.

b. General review of the Mathematical Research Division Program.

(1) Professor Wilks' group will be asked to undertake this matter as well as the SCAMP review.

Among the items of unfinished business the Board wanted to consider further were the Automation of Intercept and the Manhattan Engineer District concept of an Independent COMINT Effort. After further discussion it was agreed that the problems presented by Dr. Sinkov pertaining to mechanization of intercept be held in abeyance until more information and arguments are available at project level.

5. Mr. Friedman and Dr. Robertson brought the Board up-to-date on various possibilities in the way of application of funds from the Mutual Aid Program to increase the availability for COMINT activities of former personnel both U.S. and British and to increase the machine capabilities at GCHQ. It was the opinion of the Board that such a program should be actively pursued.

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6. The Scientific Advisory Board approved the following statement:

The Scientific Advisory Board has had time only for a quick reading of the draft NSA Long Range Estimate. It appears to be a well conceived, logically organized effort of considerable importance. For the Board to provide a valid evaluation and constructive comment will require further study. The Board has indicated that individual members thereof will, as time permits, study further the Long Range Estimate and submit their views to the Deputy Chief of Staff, Plans and Operations, for incorporation into the revised Long Range Estimate.

7. The following letter from Dr. von Neumann to General Canine was read to the Board:

"Dear General Canine:

"This is just a brief note to express to you my sincere apologies for not being able to attend the meetings of the NSA Scientific Advisory Board. I wish to assure you that this is not due to any lack of interest on my part. I have always found the work of our Board most interesting and I am deeply convinced of its importance.

"I have been hospitalized for several weeks and I am still not quite up to par. As soon as I am able to do so, I will get in touch with you and your associates to see how I can be of assistance to you--as I would like to be, and as I hope I had occasion to be in the past.

"Please express my best wishes to Bill Friedman, to the members of your staff, and to my associates on the Board. I am sure that the present meetings of the Board will be successful and fruitful.

"With best wishes.

"Sincerely yours,

/s/ John von Neumann"

The Board expressed its appreciation for Dr. von Neumann's continued interest and extended its best wishes for a speedy recovery from his illness.

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8. The Executive Secretary, NSASAB, received the following letter from Mr. H. P. Corwith:

"February 21, 1956

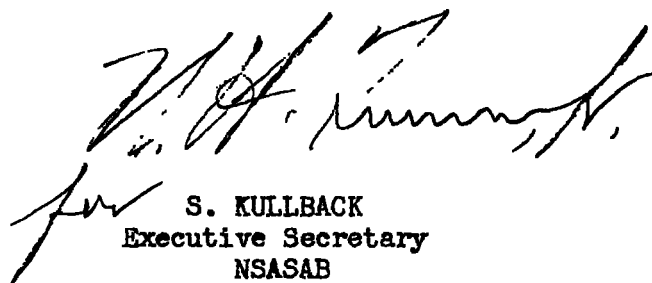
"Dear Mr. Kullback:

"I was sorry to have missed the NSA Scientific Advisory Board sessions on February 15 to 17 inclusive. I fully expected to attend but one of those viruses which seem to be popular around here got hold of me. I have now recovered.

"I will stop in to see and review the material which transpired at the meeting at the first opportunity to do so.

"Sincerely,

/s/ H. P. Corwith"


S. KULLBACK
Executive Secretary
NSASAB

Note: A verbatim record of the Board proceedings and individual reports will be on file in the Office of Research and Development for individual study.

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