Julius Rosenberg ET AL.

Referral

National

Aeronautics

And Space

Administration

No. 16

NOTICE

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appeal to:
Mr. Miles Waggoner
Freedom of Information Officer
National Aeronautics Space Administration
Washington, DC 20546

Packet: 16

REFERRAL

Reviewed by: [signature]

AGENCY National Aeronautics and Space Administration

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February 19, 1952

SAC, San Francisco

Director, FBI

[redacted]

WILLIAM PERL, aka.
ESPIONAGE - R
PERJURY
(65-59312)

Re Cleveland letter January 21, 1952, in the above-captioned matter wherein it was suggested that the Bureau may desire to have Robert L. Jones and his wife, Doris Jones, interviewed concerning their relationship with Perl, and the facts concerning the disappearance of the report on guided missiles from Langley Field Laboratory during November, 1944.

As was pointed out in Bulet of January 15, 1952, Mr. Robert L. Bell, Security Officer of the National Advisory Committee for Aeronautics (NACA), has expressed the opinion that Jones, who was considered an authority on the JB-2 (also known as the JB-544) guided missile, was primarily interested in the stability features of that missile. It was further mentioned by Bell that Jones, having had access to all of the exact details with respect to the JB-2, would have been in the position to have furnished accurate details and dimensions concerning any of the features of this project.

Bell recently made available to the Bureau copies of various attached memoranda submitted by Jones setting forth his itinerary and making his reports to NACA in connection with the JB-2 project. With respect to Jones' trip to Cleveland, Ohio, on August 24, 1944, it is noted from the itinerary that no information is set forth in this report or as presently available at NACA which indicates the exact length of time Jones remained in Cleveland, or the identity of any of his contacts there, other than his proposed visit to Bank and Heintz Company, a subcontractor on the JB-2 project. It is possible that additional information concerning this trip may be developed by the Washington Field Division at the time Jones' expense vouchers are secured from the General Accounting Office in Washington, D. C.

A check of Bufiles as to Robert L. Jones and Doris Jones failed to reflect any identifiable subversive information other than that which was previously set forth in Bulet of November 21, 1951. The San Francisco Office

Enclosures

cc: SAC, New York (Enclosure) (65-14843)
(65-16387)
SAC, Cleveland (65-2151) (65-2730)
SAC, Washington Field (65-5615) (65-3543)

[redacted]
EE:fal
(12) (65)
Note on page

ordingly authorized to interview Robert and Doris Jones for full information
n concerning their association with and knowledge of the activities of
an Perl. These interviews should be handled simultaneously but separately,
ssible, and should be given early attention unless information appears in (U)
iles of your office which would make such interviews undesirable at the
ent time.

During the course of your interview with Robert L. Jones, he should be
ifically interrogated concerning his participation in the JB-2 guided
ile project during the years 1944 and 1946. The extent of his travels in
nection with this project and particularly the details of his visit to
veland on or about August 24, 1944, should be ascertained. With respect to
latter, it should be determined whether the contacted William Perl or any
her persons in Cleveland in addition to his official visit at the Jack and
ints Company, the length of time he remained in Cleveland and whether the
ereafter returned to Wright Field or Langley Field. You should question him
to whether he ever made the acquaintance of Andrew Bohovohenko during
is 1944 period and, if so, the circumstances of their meeting and association
ould be developed. He should be specifically interrogated as to whether he
t any time discussed the details of the jet-motor unit or the Naumohing
echanism or the productional plans for the JB-2 with Perl, Bohovohenko, or
ny other person during the period of his visit to Cleveland during the latter
part of August or the early part of September, 1944. To assist you in your (U)
interrogation of Jones, there are being transmitted herewith for your information
Photostats of the following reports concerning Jones which were made available
to the Bureau by NACA:

Memorandum of Mr. Carlton Kemper to NACA Headquarters dated (U)
September 29, 1944, with the attachment entitled "Progress Report on
Ram-Jet and Aero-Pulse Projects."

Memorandum from Mr. Charles F. Barnett to NACA Headquarters dated (U)
October 26, 1951, together with the attachments to that memorandum
designated as numbers 4, 5, and 10.

Memorandum from Mr. H. Burton Gracy to NACA Headquarters dated (U)
November 16, 1951.

[redacted]

-2-

[redacted]

b1

b3

Note:

A check of files reflects the following concerning Robert Thomas and Doris Lenore Jones. Robert Thomas Jones was born in Macon, Missouri, May 28, 1910, attended University of Missouri 1928 to 1929, and Catholic University, Washington, D. C. 1931 through 1933. Employed Langley Memorial Laboratory of NACA on October 30, 1944. Now employed at Ames Laboratory of NACA, California. His wife Doris Lenore Jones, nee Cohen, was born NYC on October 2, 1915. They resided at 840 Lincoln, Palo Alto, California. According to the LCE files, both Jones and his wife were considered liberals while at Langley Field, Virginia. Jones was President of the American Association of Scientific Workers there, which organization meets allegedly following Communist Party line and some of whose members were known associates of Communists. Jones was President of VAECT Local 715 at Langley Field in 1944, which organization reported to have been Communist infiltrated. No information indicating Jones or wife engaged in espionage and both were found eligible for employment on loyalty.

(1)

TOP [redacted]

SAC, New York (65-15387)

Director, FBI (65-59312)

~~TOP SECRET~~

June 2, 1952

PERSONAL ATTENTION

~~STRICTLY CONFIDENTIAL~~

WILLIAM PERL, aka
ESPIONAGE - R

Classified by 5886 5/14/78
Exempt from GDS, Category 2
Date of Declassification Indefinite

[redacted] b1

On the basis of this information, the Bureau has made an inquiry of Mr. Robert L. Bell, Security Officer, National Advisory Committee for Aeronautics (NACA), Washington, D. C., and he advised after research that there was no information available that any guided missiles were actually produced during 1944 which were equipped with I-16 engines. You will recall, however, that the Bureau had previously determined in connection with the investigation concerning the XP-81 fighter plane that the I-16 engine is a Whittle type turbojet engine which was manufactured by the General Electric Company. (U)

Mr. Bell advised that in making his research concerning this matter he located some information which he considered might be of significance in connection with instant case. He stated that according to the files, NACA received a letter dated August 4, 1944, from the Air Materiel Command at Wright-Patterson Air Force Base, Dayton, Ohio, requesting that a program be undertaken for the purpose of developing a pilotless guided missile to meet the following requirements:

	Range	400 miles
	Payload	4000 demolition bomb
	Speed	550 MPH plus
	Control	Remote or target seeking

(U)

APPROPRIATE AGENCIES AND FIELD OFFICES ADVISED BY ROUTING SLIP(S) IF [illegible]

DATE [illegible]

According to this letter, NACA was given the responsibility of participating in the vehicle (missile or airframe) and the power supply (motor). (U)

The records of NACA reflected that by letter dated August 16, 1944, the Lewis Flight Propulsion Laboratory of NACA at Cleveland, Ohio, was furnished a copy of the Air Materiel Command's request and (U)

Enclosure

RECORDED - 90 65-59312-702

JUN 3 1952

cc: 2 - Cincinnati (65-1744)
2 - Cleveland (65-2730) (with enclosure)
2 - Los Angeles (65-5075)
2 - San Francisco
2 - Washington Field (65-5543)

EFB:GAS

JUN 1952
COMM-FBI

~~TOP SECRET~~

was authorized to start work on this secret project which was to be designated as NACA #E-110. It was pointed out that the project was considered as a long-range planning project to supersede the JB-2 guided missile. A review of the file on project #E-110 indicated that by letter dated February 23, 1944, the Lewis Flight Propulsion Laboratory sent into NACA headquarters five copies of a secret report entitled "Preliminary Analysis for the Army Air Forces, Air Technical Command, Design Study of High-Speed Long-Range Guided Missiles." This report was dated September 20, 1944, and the authors thereof appeared thereon as William Mutterperl and Alan D. Johnson, aeronautical engineers. (U)

A Photostat of this report which was originally under a secret classification but was declassified to confidential on May 5, 1952, was made available to the Bureau, and a Photostat thereof is herewith being furnished to the New York and Cleveland Offices for their assistance and information in this matter. It is noted that as a result of the research as reflected in this report, a recommendation was made that a single over-speeded General Electric I-16 (Whittle) jet engine should be used on such guided missile as being most satisfactory for the purpose desired. (U)

According to instant NACA file, this report being classified as secret was reviewed only by top officials of NACA in Washington, D. C., and was thereafter o.k.'d by them for release to the Army on September 26, 1944. It appeared from this file that ten copies of this report were made available to the Army Air Forces liaison officer at the Lewis Flight Propulsion Laboratory in Cleveland, Ohio, four copies on September 26, 1944, five copies on November 17, 1944, and one copy on January 24, 1945. There was no indication of any other dissemination made of this report outside of NACA. (U)

Mr. Bell advised that he had telephonically contacted Mr. H. Burton Bracey, the NACA security officer at Lewis Flight Propulsion Laboratory, and had learned that there was in existence no record indicating the exact number of copies of instant report which were originally made, and therefore, it could not be determined whether any copy or copies might be missing from their files. It was explained, however, that under normal circumstances an engineer participating in such project might retain for his own use and reference either his own notes or a copy of his report covering the research. (U)

It is noted with respect to this report which bears the written signatures of subject Perl that the Bureau's previous efforts to impute knowledge concerning the JB-2 project to subject Perl have been unsuccessful. However, from a review of instant report which was prepared by Perl it would definitely appear that he must have been in possession of certain of the details relative to the JB-2 in view of his having made reference therein to the fact that consideration was given to the German robot bomb. As you will recall, the JB-2 was patterned after the German V-1 robot bomb. (U)

It is also noted that during the period of Perl's research in connection with instant guided missile project, he is known to have been visited in Cleveland by Robert T. Jones, an NACA engineer who was especially assigned to the research of the JB-2 bomb. In view thereof, it is entirely possible that Perl may have had a conference with Jones during the latter's visit to the Lewis Flight Propulsion Laboratory around the first of September 1944, at which time there was a discussion as to the details of the JB-2 project. (U)

Mr. Bell stated that he had requested Mr. Bracey to make a thorough search of all the records available at Lewis Flight Propulsion Laboratory for any additional pertinent information concerning Perl's participation in instant guided missile project in order to determine the exact dates when Perl performed his research in this matter as well as the identity of classified material to which he may have had access during the research. Further, Mr. Bracey was to make an effort to locate any information appearing in the files of that laboratory which might reflect that Perl had access to data pertaining to the JB-2 project or attended any conferences at the Lewis Flight Propulsion Laboratory with Jones or any other engineers or officials wherein the production of the JB-2 guided missile was discussed. Mr. Bell indicated that he had instructed Mr. Bracey to forward any such pertinent material to NACA headquarters in Washington, D. C. (U)

[redacted]

b1

[redacted]

b1

For the information of the Cleveland Office, a check of Bufiles has failed to reflect any identifiable derogatory information pertaining to Alan D. Johnson, the co-author of instant preliminary analysis report. Accordingly, you are authorized to conduct an appropriate interview with Johnson, an aeronautical engineer at the Lewis Laboratory unless information might appear in the files of your office which would make such interview inadvisable at the present time. (J)

During this interview you should bear in mind that Johnson may be in a position to furnish information as to the exact dates of participation by Perl in this project; the identity of any classified documents or reports, including those pertaining to the JB-2, to which Perl had access during his research; the conferences which Perl may have had with Jones or any other person relative to the JB-2; the number of copies of instant preliminary analysis research report which were originally made; the number of copies of the report, if any, that Perl may have retained in his possession; and any trips which he recalls Perl may have made during or immediately subsequent to instant research report. (J)

According to NACA, more positive information as to the use or contemplated use of the I-16 engine for guided missiles during the year 1944 could best be obtained by a further inquiry at the Wright-Patterson Air Force Base in Dayton, Ohio. The Cincinnati Office is therefore requested to make an appropriate inquiry through the Air Materiel Command at that base for any additional information of possible pertinence to this matter. (J)

It is understood through information made available by NACA that the JB-1 guided missile was originally designed for the use of the I-16 jet engine, but this missile was dropped and a similar missile redesignated as the JB-10, which used a pulse jet engine, was substituted. It is requested that the Cincinnati Office obtain full information concerning the JB-1 including such data as to exact dates, identity of reports or research memoranda prepared, names of companies participating therein, and the ultimate stage of its development or production when the project was dropped. (U)

The Cincinnati Office should likewise obtain full information as to the ten copies of instant preliminary analysis report concerning high-speed, long-range guided missiles, including such data as to whether the copies were numbered, to whom the various copies were disseminated, and the ultimate disposition of any copies retained at the base. (U)

It is desired that this investigation be given immediate attention. (U)

LANGLEY AERONAUTICAL LABORATORY
LANGLEY FIELD, VA.

AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIF.

LEWIS FLIGHT PROPULSION LABORATORY
21000 BROOKPARK ROAD, CLEVELAND 11, OHIO

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS
1724 F STREET, NORTHWEST
WASHINGTON 25, D. C.

TELEPHONE: LIBERTY 5-6700

May 7, 1952

Director
Federal Bureau of Investigation
U. S. Department of Justice
Washington 25, D. C.

Re: William Perl w.a.
William Mutterperl
Espionage R
Perjury

Dear Sir:

As of possible interest to you in the above-captioned case, I am enclosing a photostatic copy of a preliminary analysis report entitled "Design Study of High-Speed Long-Range Guided Missile" by William Mutterperl.

This report was originally issued as Secret but recently has been downgraded to Confidential. The dissemination by NACA of this report was quite limited.

It will be noted that this study contemplated the use of the General Electric I-16 turbojet engine. I am able to locate only one other missile which, as of 1944, was designed for that engine; that missile was the JB-1. It appears that the JB-1 missile project was dropped and a similar missile redesignated the JB-10 and using a pulse jet engine was substituted. The availability of I-16 engines may have had some bearing on this decision.

However, authoritative information on the use or contemplated use of the I-16 engine for missiles as of 1944 could best be obtained from the Wright-Patterson Air Force Base at Dayton, Ohio.

65-59312-704

Very truly yours,

Robert L. Bell
Security Officer

Enclosure

10 1952

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

PRELIMINARY ANALYSIS

for the

Army Air Forces, Air Technical Service Command

DESIGN STUDY OF HIGH-SPEED LONG-RANGE GUIDED MISSILE

Aircraft Engine Research Laboratory
Cleveland, Ohio

September 20, 1944

SUMMARY

At the request of the Army Air Forces, a design study has been made of a guided missile to carry a two-ton bomb load a distance of 400 miles or more at a speed of 550 miles per hour. Several types of power plant were first analyzed to ascertain their suitability for this task. These included a 2000 horsepower conventional engine, the General Electric I-16 (Whittle) jet engine, and the German robot bomb (aeropulse) jet unit in multiples of two and four. A single overspeeded General Electric I-16 unit was found to be most satisfactory. A layout and design study of a guided missile incorporating this power plant was made.

INTRODUCTION

The Army Air Forces asked the NACA for a design study of a high-speed, long-range guided flying missile. The specifications were as follows:

Speed: 550 miles per hour
Range: 400 miles or more
Bomb load: 4000 pounds
Power plant: one which is available for immediate mass production and which is not too costly in view of the expendable nature of the missile
Missile design: sufficiently simple and straightforward so that construction may be started immediately without the necessity for a development program

In order to choose a suitable power plant, a preliminary analysis was made of the performance of a guided missile driven by different types of power plant satisfying the specifications. A more detailed performance analysis was made of the power plant that the preliminary analysis indicated to be most satisfactory.

where

F_j jet thrust (function of engine speed, ram pressure and temperature at speed V from reference 1), lb

M_g gas flow, a function of engine speed, ram pressure, and temperature at speed V from reference 1, slugs per second

ρ air mass density, slugs per cubic foot

S wing area, square feet,

A wing aspect ratio, 4.5

C_{D_p} profile-drag coefficient, taken as 0.018

W total weight of missile, taken as 9800 pounds

e airplane efficiency factor, taken as 0.75

With the aid of the data of reference 1, equation (1) was solved for the engine speed to give a speed V of 550 miles per hour at sea level. The resulting engine speed of 16,900 rpm was subsequently used in the detailed performance analysis. The jet thrust F_j at this engine speed and at the ram ratio 1.3, corresponding to a missile speed of 550 miles per hour and an inlet diffuser efficiency of 80 per cent, was about 2570 pounds, as indicated in table I. The net thrust $F_j - M_g V$ is 1500 pounds. The specific fuel consumption of 1.16 pounds per thrust horsepower-hour is about the same as that of the conventional engine. The thrust horsepower output is considerably higher however: 2200 horsepower as compared with 1500 horsepower for the conventional engine. The frontal area of the I-16 unit is about the same as that of the R-1830 or V-1710 engines.

The net thrust of the German aeropulse unit installed in the guided missile was estimated on the basis of Wright Field test data to be about 600 pounds. Two units, which have about the same over-all diameter in combination as the I-16 unit or the R-1830 engine, would therefore yield about the same thrust horsepower and high speed as the R-1830 engine. (See table I.) Four aeropulse units give a calculated high speed of 614 miles per hour. The high fuel weight of such an installation would, however, make the launching problem relatively difficult, as indicated by the take-off speeds in table I. Much of the advantage of the aeropulse unit over other power plants; namely, low cost and ease of manufacture, may be lost when four such units are compared with one I-16 unit.

As regards extension of range above 400 miles, the I-16 and conventional engine installations are most advantageous because of their higher over-all efficiencies and consequent lower additional required fuel load. It should be noted that, if

Finally a preliminary layout of the component parts of the missile was made to check balance, stability, and the general arrangement of the missile.

The choice of power plant, the performance analysis, and the missile arrangement are discussed in the following sections.

CHOICE OF POWER PLANT

The following power plants were considered in the design study:

(1) Pratt & Whitney R-1830 air-cooled engine or an Allison V-1710 liquid-cooled engine
(2) The General Electric I-16 (Whittle) jet-propulsion engine
(3) The German robot bomb, or aeropulse, jet unit in combinations of two and four units

The Westinghouse jet-propulsion unit was not considered because a single unit could not develop sufficient thrust and two units tended to complicate the design excessively. Steady flow ram jets were not considered because no experimental data are available on their performance and too long a research program would be needed to provide such data. The theory of such jets together with reasonable assumptions of duct losses indicated too low efficiencies at the speeds contemplated. Similarly rockets were discarded because of too low an over-all efficiency. Low over-all efficiency results in excessive size and weight of the missile and greatly increases the problem of launching.

The calculated performance of the guided missile with each of the power plants studied is given in table I. On the basis of a wing area of 100 square feet the over-all profile-drag coefficient of the missile was assumed to be 0.018. Special care in construction may be required to achieve this drag coefficient.

In the calculations of the performance with the conventional engine installation it was estimated that the power rating of the R-1830 and V-1710 engines, with water injection, could be extended to 2000 brake horsepower for 1 hour of operation. Assuming a propeller efficiency of 75 percent, the useful thrust horsepower of the engine is 1500. The resulting calculated high speed of the missile at sea level is 469 miles per hour.

The General Electric I-16 unit, when overspeeded to 16,900 rpm (rated speed 16,500 rpm) gave a high speed at sea level of 550 miles per hour. The high speed V is given by

$$F_j - M_g V - \tfrac{1}{2}\rho S C_{D_p} V^2 - \frac{W^2}{\tfrac{1}{2}\rho S A_e V^2} = 0 \qquad (1)$$

the over-all efficiency of the aeropulse unit can be sufficiently improved to compare with that of the I-16 unit, it would probably be the most satisfactory power plant for the guided missile application.

It was concluded from the preliminary analysis that one General Electric I-16 jet engine, operated overspeed at about 16,900 rpm, complied most satisfactorily with the specifications for the missile.

PERFORMANCE ANALYSIS

A more detailed analysis was next made of the performance of a guided missile equipped with a General Electric I-16 engine, for altitudes of 0, 10,000, and 20,000 feet and for fuel loads corresponding to ranges of approximately 400 and 1000 miles. The results are given in table II.

The high speeds V_c were calculated by equation (1). The missile weight W used was that appropriate to the altitude considered, account being taken of the consumption of fuel during the climb to altitude. The fuel consumption and range during climb were determined by the best (maximum) rate of climb u_c and the flight speed V_c for best rate of climb. These values were determined from the rate of climb equation

$$u_c = (F_j - D_p)\frac{V_c}{W} = \frac{F_j V_c}{W} - \frac{\rho S C_{D_p} V_c}{2W} - \frac{W}{\frac{\rho S A_e}{2} V_c^2} \qquad (2)$$

by the condition

$$W\frac{du_c}{dV_c} = F_j + V_c\frac{dF_j}{dV_c} - gM_g V_c - V_c^2\frac{dM_g}{dV_c} - \frac{3}{2}\rho S C_{D_p} V_c^2 + \frac{W^2}{\frac{\rho S A_e}{2} V_c^2} = 0$$

The range at altitude was calculated as the sum of the distance covered in the climb and the distance at the altitude required to consume the fuel. Any additional distance traversed by means of a power-off maneuver at the end of the flight was ignored.

The range for a given fuel load is seen to increase with altitude at the rate of approximately 110 miles per 10,000 feet at the lower range and 275 miles per 10,000 feet at the higher range. This increase of range is a consequence of the reduced fuel consumption with altitude for a given engine speed and of the fact that the high speed increases with altitude.

The maximum rate of climb at the lower fuel load decreases approximately linearly from 2140 feet per minute at sea level to 875 feet per minute at 20,000 feet. At the higher fuel load

the maximum rate of climb decreases from 1210 feet per minute at sea level to 136 feet per minute at 20,000 feet. The ceilings are 28,600 feet and 22,600 feet, respectively, for the two missile weights.

MISSILE ARRANGEMENT

The best arrangement of control equipment, explosive, fuel, and engine on the basis of purpose of the missile, stability, power-plant performance, and ease of manufacture was found to be the one shown in figure 1. This layout is for the missile with a 400-mile range; the missile of 1000-mile range would have a longer fuselage.

Wing

Take-off was assumed to be assisted and a maximum take-off speed of 200 miles per hour was selected. With an estimated gross weight of 10,000 pounds and a wing loading of about 100 pounds per square foot, the resulting wing area was 100 square feet. Using this value the minimum flying speed at $C_L = 1.1$ was 186 miles per hour.

An NACA low-drag wing section was selected because of the high critical speed required. The sections chosen were:

Root: NACA 65, 2 - 212
Tip: NACA 65, 2 - 209

A slight spanwise taper was provided for structural considerations and the taper due to change in thickness was taken on the bottom of the wing to give an effective dihedral angle. The principal wing dimensions are listed in table III.

Fuselage

A section through the fuselage (see fig. 1) shows the arrangement of the components. The target-seeking equipment is mounted in the nose to prevent interference from the rest of the missile. The explosive, fuel tank, and power plant are installed behind the nose section in the order named. The location of the fuel close to the center of gravity of the airplane results in a relatively small center-of-gravity travel as the fuel is used. The axial exit for the engine and the nose intake are such as to provide the optimum combination of maximum inlet ram and minimum tail-pipe losses.

The automatic pilot is mounted in the wing root section and the tail surface controls are back of the engine. The fuselage can be built in separate sections and assembled at the launching site. The exact structural details were considered only on the basis of allowing sufficient room for the necessary structural members. The principal fuselage dimensions are included in table III.

Tail Surfaces

In view of the prime requirement of high speed and consequent low drag, it was decided to use a V-type tail (reference 2) which has substantially less wetted area than the conventional tail for equivalent stability. The principal tail dimensions are given in table III.

A preliminary determination of the center-of-gravity position, which is required for the tail-surface design, is given in table IV for the two ranges of 400 and 1000 miles. No additional structural weight was allowed for the missile with a 1000-mile range because the structural-weight allowances for the 400-mile range missile were set higher than necessary to take care of possible increased range.

The missile was designed for almost neutral stability in order to keep the control moments small. The longitudinal and yawing stability derivatives are listed in table V and are defined in references 3 and 4. The longitudinal derivative was calculated. The yawing derivatives were determined from the data of references 2 and 3. Stability calculations were not carried beyond this point because of the preliminary nature of the design but the missile stability should not be a serious problem.

Reference 1. Auyer, E. L.: Type I Supercharger Test Report - Type I-16A, Unit No. 71, Ser. No. 24271. Data Folder No. 47394, Supercharger Engineering Div., General Electric Co., March 15, 1944.

Reference 2. Greenberg, Harry: Comparison of Vee-Type and Conventional Tail Surfaces in Combination with Fuselage and Wing in the Variable-Density Tunnel. NACA TN No. 915, 1941.

Reference 3. Bamber, M. J., and Spruce, R. O.: Wind-Tunnel Investigation of Effect of Yaw on Lateral-Stability Characteristics. II - Rectangular N.A.C.A. 23012 Wing with a Circular Fuselage and a Fin. NACA TN No. 730, 1939.

Reference 4. Donlan, Charles J.: Some Theoretical Considerations of Longitudinal Stability in Power-on Flight With Special Reference to Wind-Tunnel Tests. NACA ARR, 1942.

Engine Installation Research Division,
Aircraft Engine Research Laboratory,
National Advisory Committee for Aeronautics,
Cleveland, Ohio, September 20, 1944.

William Mutterperl,
Aeronautical Engineer.

Alan B. Johnson,
Aeronautical Engineer.

TABLE II.- DETAILED PERFORMANCE OF GUIDED MISSILE

[Wing area, 100 sq ft; profile-drag coefficient C_{D_0}

Fuel load (lb)	Altitude (ft)	Range (miles)	High speed (mph)	Time of flight (hr)	Fuel for climb (lb)	Max rate of climb (ft/min)	Speed at max rate of climb (mph)	Take-off speed (mph)	Lift coefficient		
									Take off	Climb	Av high speed
1750	0	378	550	0.69	0	2140	316	186	1.1	0.38	0.11
	10,000	485	570	.89	193	1361	339			.44	.14
	20,000	600	580	1.14	459	675	372			.49	.19
4200	0	882	526	1.68	0	1210	325	208	1.1	.45	.14
	10,000	1173	562	2.16	365	675	356			.49	.17
	20,000	1435	566	2.77	1104	136	387			.54	.22

NATIONAL ADVISORY
COMMITTEE FOR AERONAUT
AERL
PRELIMINARY

WERED BY ONE U.S. I-16 UNIT

= 0.018; dry weight, 7950 lb)

Thrust		Thrust power output (hp)	Air flow (lb/sec)	Fuel consumption (lb/hr)	Specific fuel consumption (lb/thrust hp-hr)	Ceiling (ft)
Jet (lb)	Net (lb)					
2561	1500	2200	41.8	4543	1.16	28,600
2070	1226	1865	32.0	3957	1.05	
626	978	1513	24.0	1483	.96	
3467	1465	2060	41.0	4502	1.21	22,600
2054	1223	1833	31.8	3940	1.06	
1608	965	1485	23.8	1475	.99	

CS

TABLE I.- COMPARATIVE PERFORMANCE OF GUIDED MISSILE WITH VARIOUS TYPES OF POWER PLANT

[Sea-level operation; range, 400 miles; profile-drag coefficient C_{D_p}[a], 0.018; wing area S, 100 sq ft; bomb load, 4000 lb]

Type of power plant	High speed V (mph)	Take-off speed[b] (mph)	Weight (lb)					Thrust power output (hp)	Thrust (lb)		Air flow (lb/sec)	Fuel consumption (lb/hr)	Specific fuel consumption (lb per thrust hp-hr)
			Bomb	Structure and controls	Power plant	Fuel	Total W		Jet F_j	Net $F_j - M_g V$			
R-1830 or V-1710	469	194	4000	3100	2000	1450	10,550	1500		1760		1700	1.13
GE I-16	550	186	4000	3100	850	1850	9,800	2200	2567	1500	41.8	2543	1.16
Aeropulse:													
2 units	464	207	4000	3100	800	4150	12,050	1480	1644	1134	20	4800	3.24
4 units	614	230	4000	3100	1600	6250	14,950	3540	3352	2162	40	9600	2.71

[a] Profile-drag coefficient for four aeropulse units is 0.021.

[b] Maximum lift coefficient at take-off is 1.1.

TABLE III.- PRINCIPAL DIMENSIONS OF GUIDED MISSILE

Wing	
Wing area, square feet	100
Span, feet	21.3
Root chord, feet	5.5
Tip chord, feet	4.0
Aspect ratio	4.5
Taper	1.38
Root section	65,2-212
Tip section	65,2-209
Fuselage	
Frontal area, square feet	12.57
Length, feet	25.25
Maximum diameter, feet	4
Fineness ratio	6.3
Tail surface	
Type	V
Dihedral angle, deg	35
Total area (outside fuselage), feet	12.5
Average chord (outside fuselage), feet	1.79
Semispan (outside fuselage), feet	3.5
Elevator area (outside fuselage), square feet	2.03

TABLE IV.- CENTER-OF-GRAVITY ANALYSIS OF GUIDED MISSILE

Component	400-mile range			1000-mile range		
	Weight (lb)	Moment arm (ft)	Moment (lb-ft)	Weight (lb)	Moment arm (ft)	Moment (lb-ft)
Power plant	840	16.5	13,850	840	23.1	19,400
Fuel	1750	10.5	18,350	4200	12.0	50,400
Bomb	4000	5.25	21,000	4000	5.25	21,000
Fuselage	1900	12.0	22,800	1900	15.30	29,100
Wing	850	10.0	8,500	850	13.0	11,050
Tail	100	24.0	2,400	100	30.0	3,000
Control equipment	200	21.0	4,200	200	27.6	5,520
Target-seeking equipment	60	.7	42	60	.7	42
Total	9700		91,142	12,150		139,512
Full-fuel load c.g. position from nose, ft		9.40			11.45	
No-fuel c.g. position from nose, ft		9.18			11.21	
Total c.g. travel, percent chord		4.6			5.1	

TABLE V.- STABILITY OF MISSILE FOR VARIOUS FLIGHT CONDITIONS

[For definition of symbols, see references 3 and 4.]

Static longitudinal stability		
Condition	$dC_{M_{cg}}/dC_L$	Elevator angle (deg)
High speed, 550 mph at 5000 feet; half fuel gone; airplane trimmed at -3.75° tail setting	-0.027	0
Take-off (C_L = 1.1)	-0.004	-0.43
End of climb, 385 mph, 20,000 feet; one-third fuel gone	-0.0193	-1.66
End of flight, 550 mph, sea level; no fuel	-0.05	-0.6
Static yawing derivative based on wing span		
Fuselage and wing $\frac{dC_{n_{fw}}}{d\beta}$		0.0033
Tail in presence of wing and fuselage $\frac{dC_{n_t}}{d\beta}$		-0.0055
Wing-fuselage-tail combination $\frac{dC_n}{d\beta}$		-0.0022

NATIONAL ADVISORY
COMMITTEE FOR AERONAUTICS

AERL

PRELIMINARY

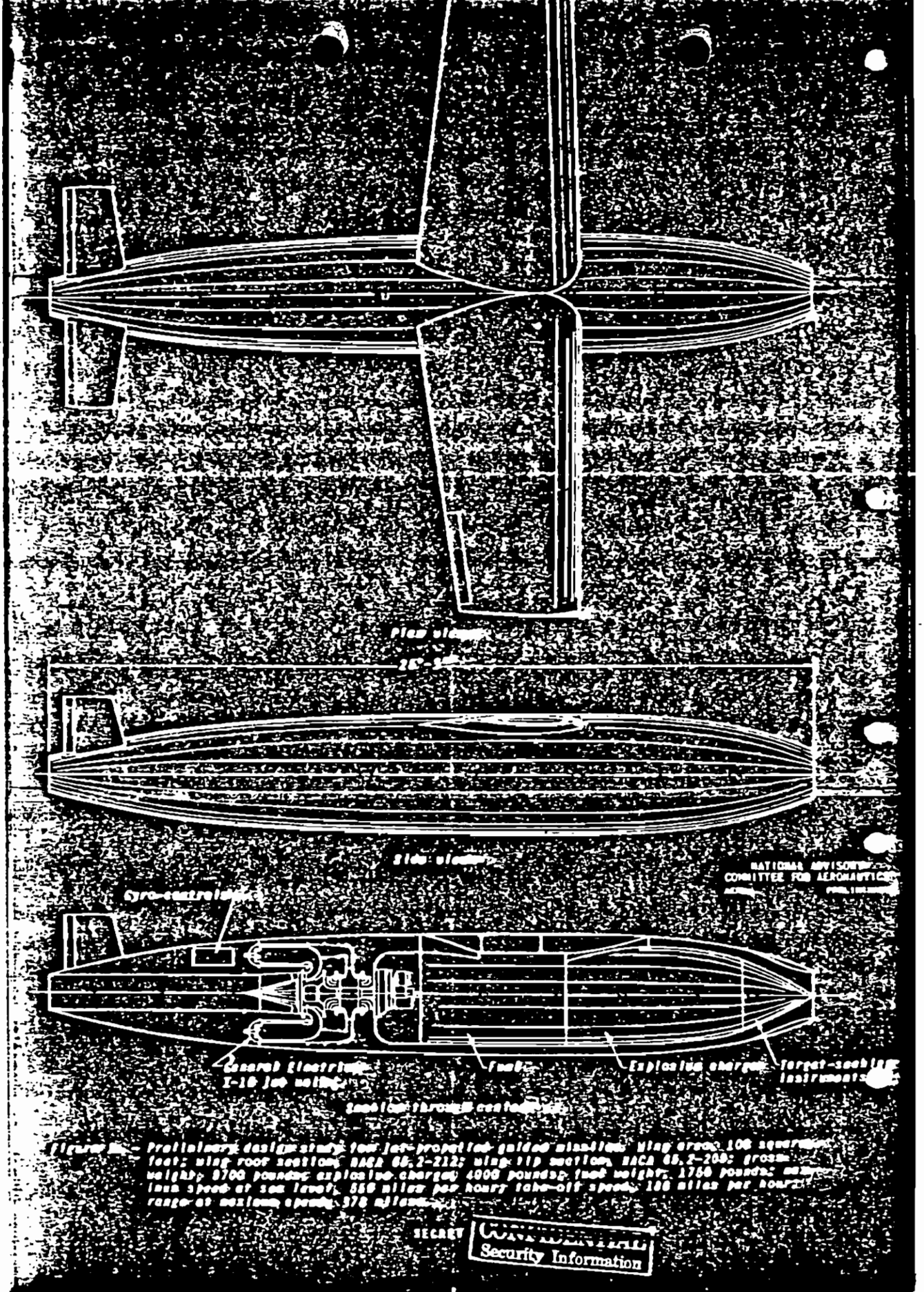
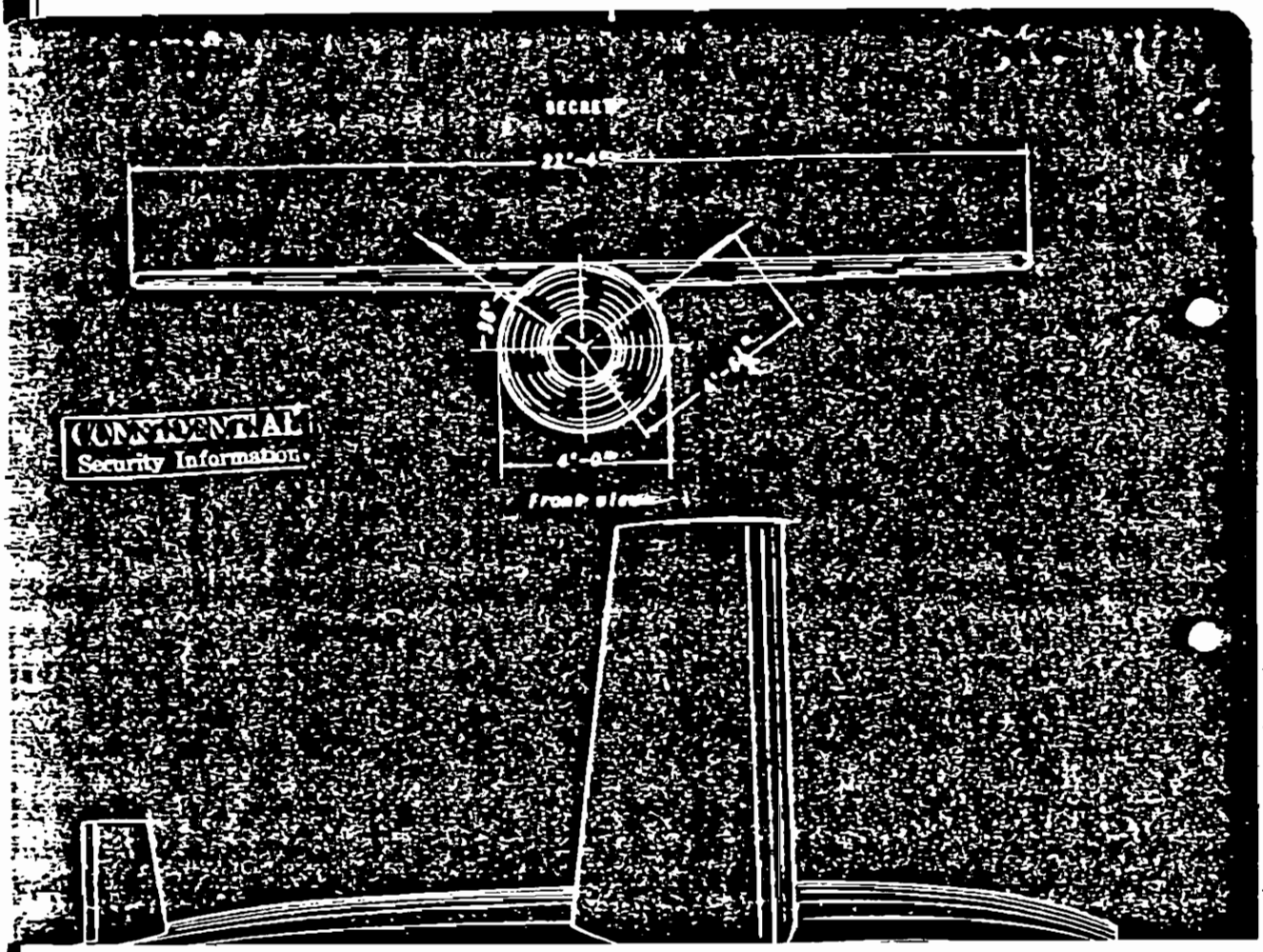


Figure [illegible]. — Preliminary design sketch of four jet-propelled guided missiles. Wing area, 108 square feet; wing root section, NACA 65,2-212; wing tip section, NACA 65,2-208; gross weight, 8700 pounds; explosive charge, 4000 pounds; fuel weight, 1750 pounds; maximum speed at sea level, 550 miles per hour; take-off speed, 180 miles per hour; range at maximum speed, 378 miles.


SECRET
22'-4"
CONFIDENTIAL
Security Information

SAC, Cleveland (65-2730) June 6, 1952

Director, FBI (65-59312)

WILLIAM PERL, aka
ESPIONAGE - R
PERJURY

ReBulet June 2, 1952, in the above-captioned matter wherein you were furnished with information relative to a preliminary analysis report prepared by subject Perl on September 20, 1944, entitled "Design Study of High-Speed Long-Range Guided Missiles" (NACA E-110).

As was pointed out therein, the NACA Lewis Flight Propulsion Laboratory, Cleveland, Ohio, has advised that it has no available record as to the exact number of copies of the above report which were printed. However, from an examination of the information contained on charge-out records of that Laboratory, Photostats of which were made available to the Bureau, it definitely appears that the various copies of this report were numbered. These records reflect that there were available at the Cleveland NACA Laboratory at least three copies identified as file number 141-A, copies 1, 2 and 3 of this report.

With respect to copy #2 of instant report, the records of the Cleveland NACA Laboratory indicate same was charged out to Abe Silverstein, Perl's immediate supervisor in the Laboratory, on September 25, 1944. It is interesting to note that on February 2, 1945, one D. Barr directed a memorandum to Silverstein to which there was attached a list of secret documents together with the dates same were charged out from the library. It was mentioned in this memorandum that the majority of these documents were overdue.

An examination of this list of documents reflects that copy #2 of 141-A (instant guided missile report dated September 20, 1944) was charged out on September 25, 1944. There also appears a notation as to this charge-out item to the effect that it was charged out "for Mutterperl" and a penciled note, "See Bill." In view thereof, it can definitely be concluded that as of February 2, 1945, copy #2 of instant report which had been charged out by Silverstein had been entrusted to Perl and had not been returned to the library by him. No information is available to indicate whether it was ever returned and it is understood that no copies of the report are now available in that library.

INDEXED - 129

Enclosure

RECORDED - 129 65-59312-1744

cc: 2 - New York (65-15387)
2 - Cincinnati (65-1744)

JUN 11 1952

EX-93

MAILED 9
JUN 9 1952
COMM-FBI

RFK:GAB

U.S. DEPARTMENT OF JUSTICE
FBI
RECEIVED READING ROOM
JUN 9 6 17 PM '52

JUN 20 1952

In view of the foregoing information, it is requested that the Cleveland Office appropriately contact Mr. H. Burton Bracey, Security Officer, NACA, Cleveland, and make an effort to determine through him any other available information concerning the various copies of instant document which were formerly maintained in the library in the Laboratory. Likewise, an effort should be made to ascertain whether there is any record as to the exact copy numbers of the ten copies of instant report which were designated to the Army Air Force, Technical Service Command, Wright-Patterson Field, Ohio. An effort should be made further, through an examination of any available charge-outs, inventory or any pertinent records, to develop any information indicating the disposition which may have been made of the various copies of this report which were previously maintained in the NACA library and particularly, to ascertain whether copy #2 was ever returned to the library by either Silverstein or Perl. With respect to the latter, you may desire to contact D. Barr, possibly a librarian, or have an appropriate inquiry made of Silverstein for the purpose of determining whether either might recall any details concerning this incident. All logical lines of investigation which might be expected to resolve the question as to the disposition of the Cleveland NACA Laboratory's copies of instant report should be vigorously pursued.

A Photostat of each of the Cleveland NACA Laboratory records previously referred to herein is being forwarded herewith for the assistance of the Cleveland Office in conducting this investigation. Your attention is particularly invited to the previously referred to D. Barr memorandum to Silverstein dated February 2, 1945, and its attachments. It will be noted that the list of various secret documents charged out to Silverstein as of the date of this memorandum appears in the attachments. It is desired that you determine whether all of the documents indicated on this list as being overdue were actually returned to the library. You should also endeavor to ascertain the exact meaning of the penciled notations appearing on the memorandum as well as the attachments.

It will also be noted that among the Photostats pertaining to copy #2 of instant report (141-A), there appears a form entitled "Special Document Circulation Record" (form C-807). There is a penciled notation on this form which indicates that "AS," undoubtedly referring to Abe Silverstein, received this copy as of June 29 (year not indicated). The purport of this notation is not readily understandable unless same is intended to reflect that Silverstein still had this copy charged out to him as of June 29, 1945, or a date subsequent thereto.

You should determine if possible the exact date the above document circulation record was executed, by whom, the identity of the person "Alex," whose name appears in the upper left-hand corner, the date this was marked declassified, and the person who placed the latter notation thereon. In this respect, you are aware that instant document pertaining to a high-speed, long-range, guided missile was never declassified and was not reclassified from secret to confidential until May 5, 1952. Thus the notation "declassified" is obviously incorrect and should never have been placed on this record.

The Cincinnati Office is being requested to expedite the investigation at the Wright-Patterson Air Base as requested in reference and to furnish the results thereof, particularly with respect to the exact number of copies of instant design study report furnished to AAF by NACA and the ultimate disposition of each copy, to the Cleveland Office in order to assist in their investigation in this matter.

RECEIPT FOR DOCUMENTS RETURNED TO NACA BY FBI

(1) "Investigations of Jet-Propulsion Engines in the NACA Altitude Wind-Tunnel."

(2) "Altitude Wind-Tunnel Investigations of Thrust Augmentation of Turbojet Engine. I-Performance with Tail-Pipe Burning."

(3) "Final Report of Development of XP-59A and YP-59A Model Airplanes."

(4) "Thrust-Augmentation Tests of Type I-16 Jet-Propulsion Engine by Bleedoff and Water and Alcohol Injection."

(5) "The Locus of Possible Positions of a Heavy Bomber in Space after a 12-Second Time Interval."

(6) "Calculated and Measured Turning Performance of a Navy F2A-3 Airplane as Affected by the Use of Flaps."

(7) "Effects of Compressibility on the Maximum Lift Characteristics and Spanwise Load Distribution of a 12-Foot-Span Fighter-Type Wing of NACA 230-Series Airfoil Sections."

(8) "Effect of Mach and Reynolds Numbers on the Power-Off Maximum Lift Coefficient Obtainable on a P-39N-1 Airplane as Determined in Flight."

(9) "Effect of Mach and Reynolds Numbers on the Maximum Lift Coefficient Obtainable in Gradual and Abrupt Stalls of a Pursuit Airplane Equipped with a Low-Drag Wing."

(10) "Preliminary Investigation of the Effect of Compressibility on the Maximum Lift Coefficient."

(11) "Wing Pressure-Distribution Measurements up to 0.85 Mach Number in Flight on a Jet Propelled Airplane."

(12) "Wind-Tunnel Tests of the Gorgon IIA and IIB Airframes. II - Power-Off Longitudinal and Lateral Stability and Control."

(13) "Design, Construction and Preliminary Flight Tests of a 14" RESOJET Power Plant for the GORGON II-C Controlled Missile."

(14) "AN APH-5B Status and Progress."

(continued) RECORDED - 165-59312-713

JUN 23 1952

JUN 2 1952

RECEIPT FOR DOCUMENTS RETURNED TO NACA BY FBI (continued)

(15) "High-Speed Wind-Tunnel Tests of a 1/3-Scale Model of the XP-80 Airplane."

(16) "Final Report of Development, Procurement, Performance and Acceptance XP-80 Airplane."

(17) "Wind-Tunnel Tests of a 1/4-Scale Model of the Bell XS-1 Transonic Airplane (Army Project MX-653). I - Longitudinal Stability and Control Characteristics."

(18) "Wind-Tunnel Tests of a 1/4-Scale Model of the Bell XS-1 Transonic Airplant (Army Project MX-653). II - Lateral and Directional Stability and Control."

(19) "Force and Longitudinal Control Characteristics of a 1/16-Scale Model of the Bell XS-1 Transonic Research Airplane at High Mach Numbers."

(20) "Aerodynamic Characteristics of 24 NACA 16-Series Airfoils at Mach Numbers between 0.3 and 0.8"

Lloyd W. Blankenbaker
Assistant Security Officer, NACA

Date: 6/17/52

~~SECRET~~ ~~CONFIDENTIAL~~

Office Memorandum • UNITED STATES GOVERNMENT

Mr. Tolson	
Mr. Nichols	
Mr. Belmont	
Mr. Clegg	
Mr. Glavin	
Mr. Harbo	
Mr. Rosen	
Mr. Tracy	
Mr. Laughlin	
Tele. Room	
Mr. Holloman	
Miss Gandy	

TO : DIRECTOR, FBI (65-59312)

FROM : SAC, CLEVELAND (65-2730)

DATE: July 3, 1952

~~TOP SECRET~~

SUBJECT: WILLIAM PERL, aka
ESPIONAGE - R
PERJURY

STRICTLY ~~CONFIDENTIAL~~

Rebulets, June 2 and 6, 1952. (U)

Referenced letters indicate that previous efforts to impute knowledge of the JB-2 bomb to WILLIAM PERL have been unsuccessful; requested that ALAN D. JOHNSON be interviewed concerning PERL's participation in this project, and that investigation be conducted concerning the document prepared by JOHNSON and PERL entitled, "Preliminary Analysis, Design Study of High-Speed Long-Range Guided Missiles," dated September 20, 1944. (U)

[redacted] (b)(1)

As noted in Cleveland letter, January 21, 1952, ROBERT T. JONES, NACA scientist, assigned to Langley Field, Virginia, visited NACA, Cleveland, and attended a Ram Jet Conference on November 11, 1944, with the subject. At this time, JONES was primarily engaged in work on the JB-2 and it was shortly after his visit that copy No. 55 of "Guided Missiles, Development, Status and Availability" was first missed. PERL's position as a member of this committee, (U)

RECORDED - 56

JBC:D:ncm

INDEXED - 56

65-59312-717

JUL 7 1952

cc: Cincinnati (65-1744) (RM)
Los Angeles (65-50755) (RM)
New York (65-15387) (RM)
San Francisco (65-) (RM)
Washington Field (65-5563) (RM)

12

APPROPRIATE AGENCIES
AND FIELD OFFICES
ADVISED BY LETTER
SLIP(S) OF

COPIES DESTROYED
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REGISTERED MAIL

~~TOP SECRET~~

Classified by 9886 3/4/78
Exempt from GDS, Category 1,3
Date of Declassification Indefinite

~~SECURITY INFORMATION~~ ~~CONFIDENTIAL~~

DIRECTOR, FBI

plus the previously reported statements of CARLTON KEMPER, Executive Engineer, NACA, and JESSE HALL, Assistant Chief of Research, among others, certifies to PERL's access to any and all material concerning such a program, as well as other research conducted at NACA. (U)

ALAN D. JOHNSON, Aeronautical Research Scientist, advised the writer that he well remembers preparing the "Preliminary Analysis," referred to above, with PERL during the Summer of 1944, but is unable to recall if PERL had maintained a copy of this document for his personal use. He stated that he, too, was a member of the Ram Jet Committee and although he did not specifically recall any particular documents to which he and PERL had access, he felt certain that PERL, because of the high regard in which he was held and because of his position at NACA, was furnished with all classified material of any importance. He had no knowledge of the number of copies prepared of the "Preliminary Analysis." (U)

A review of records of the NACA Library was made with the assistance of Miss ETHEL V. LYON to ascertain to whom copies of PERL's and JOHNSON's report had been charged and for what periods. No copies of this document are now available in Cleveland, however, two charge-outs were located, one of which reflected that a copy had been sent to ABE SILVERSTEIN as of September 25, 1944, (copy No. 2). There were no other records of charge-outs and both copies No. 1 and No. 2 were inventoried in the library as of September, 1948, indicating SILVERSTEIN's copy was returned prior to that date. It was noted that the photostat of the charge-out for this document, furnished by the Bureau, indicated that this charge-out covered copy No. 2, however, this is an entirely different charge-out than the one maintained in the library and it is believed that, in fact, the photostatic copy refers to copy No. 3 (note the No. 3 is crossed out). This charge-out was located by H. BURTON BRACY, Security Officer, in the Supersonic Wind Tunnel Building in an office formerly used by ABE SILVERSTEIN. The notation "Alma" in the upper left hand corner was placed thereon by Mr. BRACY to indicate that this paper had been taken from files maintained by ALMA WILDY, Secretary to J. C. EVVARD, Supersonic Wind Tunnel Building, who assumed SILVERSTEIN's duties when the latter was named Chief of Research. Miss WILDY has previously been interviewed in this matter and it is noted that she merely inherited these papers in the Supersonic Wind Tunnel files (U)

and is not familiar with their origin. No record of the number of copies could be located. (U)

It was explained by Miss [redacted] that prior to 1946 the library had little or no control over a great many documents. She stated that papers of extreme importance and papers of certain projects were received in the office of the Chief of Research or the Executive Engineer and were not seen by the library, nor indexed by it. As a result, charge-out records for this period have in many instances been destroyed. This was corroborated by CARLTON KEMPER, who advised that his former Secretary, Mrs. DOLORES BARR, had maintained personal charge-outs for a great many documents and that at certain times she would "tickle" the various division chiefs for documents which had been charged out to them for a lengthy period of time. A search of files maintained by Mr. BRACY reflected a number of such memoranda directed to various division chiefs, including five or six pages to Mr. ABE SILVERSTEIN, in addition to the two photostats which were furnished with rebulet of June 6. According to Mr. KEMPER, Mr. BRACY and Miss LYON, it would be physically impossible to trace these documents at this date, since all Mrs. BARR's charge-out records have been destroyed and in view of the library's position, as outlined above. Mrs. BARR is no longer with NACA and her whereabouts are not now known. It will be recalled this same problem was faced when attempting to trace charge-outs and circulation records of the Lexington Report. (U)

Mr. BRACY confidentially advised that the NACA staff is quite upset over the condition of the library charge-out and maintenance system. As a result, the library is now undergoing a complete survey and there is a very strong possibility that Miss [redacted] may be asked to resign. (U)

It was noted in referenced letter of June 6 that a question was raised as to the meaning of the written notation "declassified," which was placed on the charge-out record, a photostat of which was enclosed with referenced letter. While searching library records, it was noticed on the two charge-outs for copies No. 1 and No. 2 of the "Design Study" that on November 29, 1948, copies of this document were sent to the Air Force Liaison Section for declassification. There was no indication that the documents had been declassified, but it was the opinion of Mr. BRACY and Mr. JESSE HALL (U)

that, in all probability, when these documents were sent to Liaison someone in the Supersonic Wind Tunnel Building had assumed the documents would be declassified and had so noted on the charge-out record in question. (U)

[redacted] b1

It is of interest to note that the Ram Jet Committee was headed by EASTMAN N. JACOBS, who is prominently mentioned in the case entitled, "HERMAN EPSTEIN, ESPIONAGE - R," (Bufile unknown), and who may be involved in Communist activities. JACOBS was employed by NACA from 1925 to 1945 and is, according to NACA officials, an engineer of world renown in the field of Aerodynamics. It is suggested the Bureau may desire to have JACOBS interviewed concerning his knowleige of PERL, as well as his own activities. (U)

An early interview with ABE SILVERSTEIN is planned concerning HAROLD and SIDNEY [illegible] and other matters concerning WILLIAM PERL and UACB the proolems posed in rebulets will be discussed in general with SILVERSTEIN. (U)

It is felt that evidence can be secured to show PERL had access to information regarding most projects at NACA, although proving possession of a given document may not always be possible. In particular, it is not believed that NACA employees will state, though possibly true, that PERL had access to AEC restricted data unless subpoened before the Federal Grand Jury, since to do so would be evidence of a violation of the Atomic Energy Act against the person authorizing such access. (U)

UNITED STATES DEPARTMENT OF JUSTICE

FEDERAL BUREAU OF INVESTIGATION

American Embassy
1, Grosvenor Square
London, W. 1

In Reply, Please Refer to File No.

SECRET - AIR COURIER

~~SECRET~~

Date: July 22, 1952

To: Director, FBI (65-59312)

From: Legal Attache
London, England (65-751)

Subject: WILLIAM PERL, aka
ESPIONAGE - R; PERJURY

Classified by 5886 3/14/78
Exempt from GDS, Category 1
Date of Declassification Indefinite

Reference is made to Bulletins 3-13-52, 3-25-52, and 6-12-52.

[redacted]

65-59312-723

JFO:CFJ

Enclosures

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INDEXED - 73

~~SECRET~~

[redacted]

(S)

[redacted]

(S)

[redacted]

SECRET

Director, FBI 7-22-52

[redacted] (S)

[redacted] (S)

[redacted] (S)

There are being returned herewith the following items:

1. NACA Data Sheets.

2. Report captioned "Justification of [redacted] for Construction for Fluid and Gas Dynamics Analysis Laboratory."

3. Report No. 1079, "U.S. Naval Ordnance Laboratory."

4. Department of Navy Secret Memorandum, dated February 6, 1952, from the Commander of U. S. Naval Ordnance Laboratory, re "Construction Diagram and Description of U. S. Naval Ordnance Laboratory, Request For."

(U)

SECRET

UNITED STATES DEPARTMENT OF JUSTICE

FEDERAL BUREAU OF INVESTIGATION

In Reply, Please Refer to File No.

American Embassy
1, Grosvenor Square
London, W. 1

SECRET - AIR COURIER

SECRET

Date: July 22, 1952

To: Director, FBI (65-59312)

From: Legal Attache
London, England (65-751)

Subject: WILLIAM PERL, aka
ESPIONAGE - R; PERJURY

Classified by 5886 3/14/78
Exempt from GDS, Category 1
Date of Declassification Indefinite

ReBulets 3-13-52, 3-25-52, and 6-12-52. (W)

[redacted] (S)

ENCLD. BEHIND FILE

JPO:CFJ

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165-59312-723

JUL 30 1952

5

FBI/DOJ

JUL 31 1952

PROCESSING

Director, FBI 7-22-52

[redacted]

(S)

Director, FBI 7-22-52

[redacted]

(S)

~~SECRET~~

~~SECRET~~

Director, FBI

7-22-52

[redacted] (S)

[redacted] (S)

[redacted] (S)

There are being returned herewith the following items:

1. NACA Data Sheets.

2. Report captioned "Justification of Need for Construction for Fluid and Gas Dynamics Analysis Laboratory."

3. Report No. 1079, "U.S. Naval Ordnance Laboratory."

4. Department of Navy Secret Memorandum, dated February 6, 1952, from the Commander of U. S. Naval Ordnance Laboratory, re "Construction Diagram and Description of U. S. Naval Ordnance Laboratory, Request For."

(U)

~~SECRET~~

SECURITY INFORMATION

SECRET

0306344

65-59312

BY SPECIAL MESSENGER

Date: August 18, 1952

To: Director
National Advisory Committee for Aeronautics
1724 F Street, N.W.
Washington, D. C.

Attention: Mr. Robert L. Bell
Security Officer

From: John Edgar Hoover, Director
Federal Bureau of Investigation

Subject: WILLIAM PEISL, aka.
ESPIONAGE - R; PERJURY

[redacted] (3)

RECORDED - 159 65-59312-725

AUG 19 1952

[redacted] (3)

[redacted] (3)

APL:eme:rd

SECURITY INFORMATION - SECRET

BY SPL. MSGR.
37 AUG 19
COMM - FBI

58 AUG 26 1952

SECRET

[redacted]

(S)

[redacted]

[redacted]

(S)

[redacted]

SECRET

All of the above is for your confidential information (U)
and no dissemination should be made outside of your organization.

Attachment

SECRET

Julius Rosenberg ET AL.

Referral

National

Aeronautics

And Space

Administration

No. 17

Appeal to:
Mr. Miles Waggoner
Freedom of Information Officer
National Aeronautics & Space Administration
Washington D.C. 20546

REFERRAL

Reviewed by: [signature]

AGENCY National Aeronautics and Space Administration

Packet: 17

	Subject and File Number	Serial	Date	Document Description	No. of Pages Actual	Released
1	Per|(HQ)65-59312	539	10/4/51	W.F.O Letter to HQ	1	1
2	" " " "	549	9/25/51	HQ Teletype to NY	1	1
3	" " " "	556	10/6/51	C.V. report to HQ w|copy of cover sheet	9/1	10
4	"				1	1
5	" " " "	599	11/28/51	NF report to HQ w|copy of cover sheet	3/1	4
6					1	1
7	Per|(HQ)65-59312	684	3/31/52	C.V. Letter to HQ	4	4
8	Sidorovich(C.V)65-2730	394	1/4/51	C.V. memo to file	5	5
9	" " " "	431	2/27/51	" " " "	2	2
10	Per|(HQ)65-59312	650	1/17/52	HQ Letter to NY	1	0
11	" " " "	650	1/8/52	National Advisory committee For Aeronautics Letter to HQ	4	1
12	" " " "	668	2/5/52	National Advisory committee For Aeronautics Letter to HQ	1	1

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : DIRECTOR, FBI (65-59312) DATE: October 4, 1951

FROM : SAC, WFO

SUBJECT: WILLIAM PERL, wa.
ESPIONAGE - R

Re New York tel September 24, 1951. There are being furnished the New York Office by registered mail copies of five expense vouchers executed by subject from the period of December, 1943, until his termination of employment by the National Advisory Committee for Aeronautics, along with miscellaneous papers incidental thereto. According to Mr. ROBERT BELL, Security Officer of the NACA, these documents obtained from the Lewis Laboratory, Cleveland, constitute the only vouchers submitted by PERL while at the Lewis Laboratory. BELL further advised that inquiry by him at Langley Field, Virginia, revealed no record of any travel or expense vouchers submitted by PERL while stationed at that place, and that it was unlikely that PERL's work had necessitated travel during that period. It is requested that the foregoing documents be returned to the Washington Field Office for transmittal to BELL after they have served their purpose.

RLS:cs
65-5543
cc - New York (65-15387) (Enclosure) (REGISTERED)
cc - Cleveland (65-2730)

RECORDED - 23 65-59312-539
OCT 5 1951

EX-107

September 25, 1951

DEFERRED

SAC'S NEW YORK
WASHINGTON FIELD (BSM)

RECORDED - 32

65-59812-549

68-X3

WILLIAM PERL, WAS, ESP R, PERJURY.

REURTEL SEPTEMBER TWENTY-FOUR, FIFTY-ONE, RE EXPENSE VOUCHERS PERL. NACA ADVISES ALL THEIR VOUCHERS MORE THAN FIVE YEARS OLD DESTROYED BUT ORIGINALS STILL AVAILABLE GENERAL ACCOUNTING OFFICE. WFO REQUESTED OBTAIN COPIES ALL VOUCHERS AVAILABLE NACA AND EARLIER VOUCHERS AT GAO. NACA INDICATED NO EXPENSE VOUCHERS SUBMITTED BY PERL FOR JANUARY, FIFTY. HIS FEBRUARY, FIFTY, VOUCHER REFLECTED LEFT CLEVELAND TWO FIFTY P.M./EST FEBRUARY ONE ARRIVING NYC FOUR THIRTY P.M. REMAINED NYC UNTIL EIGHT FIFTEEN A.M. FEBRUARY SIX, WHEN RETURNED CLEVELAND, ARRIVING TEN TWENTY-FIVE A.M. VOUCHER INDICATED SPENT FEBRUARY TWO THROUGH FOUR IN NYC RECRUITING TECHNICAL PERSONNEL FOR LEWIS FLIGHT PROPULSION LABORATORY.

HOOVER

CC: WASHINGTON FIELD (BY SPECIAL MESSENGER)

65-59812

EFE:mpm

NOTE: Above information obtained telephonically from Mr. Robert Bell, Security Officer, NACA.

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SEP 26 10:39 AM '51 U.S. DEPT. OF JUSTICE

SEP 26 10:39 AM '51 FBI

SEP 26 1951

TELETYPE

OCT 20 1951

11-44 dm

FD-71
(1-10-49)

FEDERAL BUREAU OF INVESTIGATION

FORM No. 1
THIS CASE ORIGINATED AT NEW YORK

FILE NO. CV 65-2730

REPORT MADE AT	DATE WHEN MADE	PERIOD FOR WHICH MADE	REPORT MADE BY
CLEVELAND	10-6-51	7-16,20,24,26,27; 8-6,9-18,20;10-2-51	JOHN B. O'DONOGHUE dht

TITLE: WILLIAM PERL, wa.

CHARACTER OF CASE: ESPIONAGE - R (PERJURY)

SYNOPSIS OF FACTS:

NF 8-1
NF 22

Leave records, NACA, failed to indicate subject absent from work 7-29-44. Total leave recorded for year is twenty-two days. However, subject indicated in personnel memo he had taken twenty-eight days as of 11-9-44. July 29, 1944, a Saturday, was official work day as were all Saturdays during 1944. ROLF W. LANDAUER not known to be associated with PERL at NACA. Mrs. JOSEPH LEVINE denies any knowledge of the subject and/or Lexington Report. Investigation 2744 Mayfield Road negative.

61 R-2

- P -

Details: MAX and HELENE FLETCHER have advised they had a dinner date at the Bird-In-Hand Restaurant in New York City with the subject, JULIUS ROSENBERG, and others sometime during September, 1944. They have recently, however, come to the conclusion that this dinner engagement most probably occurred toward the end of July, 1944.

10/29/51 1cc Mr. Summers 1cc NACA

The leave records of the Bureau of Ordnance, Navy Department, Washington, D.C., reflect

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65-593 121-556

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Y-6

(See Page 1-A)

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CV. F. O.
65-2730

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1 - Albuquerque
1 - Buffalo (65-2003)
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1 - Knoxville (65-488)
1 - Los Angeles (65-5075)
1 - Newark (65-4100)
1 - Norfolk (65-514)
1 - Philadelphia (65-4384)
1 - San Francisco
1 - Washington Field (65-5543)
4 - Cleveland

that MAX ELITCHER was on leave in 1944 during the month of July from 3:30 p.m. on July 27th until 4:30 p.m., July 31st, and in August from August 26th to September 2nd.

Army leave records reflect that SAM PERL, who allegedly was also present at the dinner party, was on furlough from July 21, 1944, through August 4, 1944.

A review of the leave records at the Lewis Flight Propulsion Laboratory, National Advisory Committee for Aeronautics, was again made by the writer and no additional leave could be found for PERL for the year 1944 other than that previously reported. It was noted, however, in PERL's personnel file that he had directed the following memorandum to the Manager of the Laboratory:

"Cleveland, Ohio,
November 9, 1944.

"MEMORANDUM For Manager.

"Subject: Overdrawn leave.

"1. I have taken a total of 28 days leave this year. My leave is therefore 8 days in excess of the maximum time granted.

"2. The overdrawal of leave was made necessary by my marriage and the ensuing difficulty of locating a suitable place to live.

"3. It is requested that the excess leave be granted as annual leave.

/s/ William Lutterperl,
Aeronautical Engineer.

"WL:hmg
AS"

CV. F. O.
65-2730

As it will be noted in this memorandum, PERL states that as of November 9, 1944, he had taken a total of twenty-eight days' leave for the current year and that his leave, therefore, was eight days in excess of the maximum time allowed. NACA records reflect that PERL took but twenty-two days for the entire year and that as of November 9, 1944, he had taken only seventeen. Attached hereto are photostatic copies of PERL's leave cards for the year 1944 which are self-explanatory.

In attempting to pinpoint any official leave taken by PERL, a review was made of his expense vouchers for the year 1944. However, only one voucher was located which was dated January and which covered his transfer from the Langley Memorial Aeronautical Laboratory to the Lewis Flight Propulsion Laboratory (then Aircraft Engine Research Laboratory).

Miss JULIA GREEN, who is in charge of Time, Leave and Payroll Records at the Lewis Flight Propulsion Laboratory, advised from a review of records in her possession that July 29, 1944, a Saturday, was a work day at NACA and a six-day work week was in effect throughout the entire year of 1944.

Mr. ROBERT BELL, Chief Security Officer, NACA, has advised that ROLF W. LANDAUER, who is employed in the Materials and Stresses Section, NACA, was recruited by WILLIAM PERL. It is noted that by recruitment BELL meant LANDAUER's services had been secured for the Laboratory.

A review of LANDAUER's file was made by SA EDWARD J. MOORE, JR. Nothing of a derogatory nature was noted.

Mr. H. BURTON BRACEY, Security Officer, NACA, Cleveland, advised the writer that LANDAUER was the only person who came to NACA as a result of PERL's recruiting program conducted at Columbia University during February, 1950. According to BRACEY, LANDAUER was brought to Cleveland specifically to assist in the development of nuclear energy as it pertains to the aircraft industry but he has been unable to be of any assistance since he has not received Atomic Energy Commission clearance. BRACEY also advised there was no indication of any association between PERL and LANDAUER while they were both employed by NACA.

ROBERT BELL, previously described, has also advised that IRVA C. LEVINE, wife of JOSEPH LEVINE, NACA, Cleveland, and a former NACA employee

CV. F. O.
65-2730

herself, had at one time acted as secretary to ALFRED BOBROWSKY and may have had access to the Lexington Report.

Mrs. JOSEPH LEVINE, 29602 Foote Road, Bay Village, Ohio, was interviewed by SA FREDERICK L. EDWARDS and the writer, at which time she advised she had no contact with the subject at any time and was not acquainted with the Lexington Report. She advised that she worked in the Lubrication and Wear Section, Engine Research Building, N.A.C.A., Cleveland, where her only contact with any matters which may have been related to the Atomic Energy Commission consisted of a project on the purification of uranium. The request was made for her to do this work by ALFRED BOBROWSKY. However, she was unable to carry her studies to any extent since a physical examination revealed her blood system would not permit close work with uranium.

She advised she also had done some work with BERT ROSENBAUM on micro-constituents in high temperature alloys which involved X-ray patterns in attempting to identify the constituents. She advised this work was done in 1948 and she worked closely with ALFRED BOBROWSKY on this although she did not know the exact work BOBROWSKY was doing. She advised that she did not act as secretary to BOBROWSKY at any time but had on several occasions done clerical work for ED BISSON.

The following investigation was conducted by SA EDWARD J. MOORE, JR.:

On September 20, 1951, SA MOORE interviewed Mrs. ELIZABETH CSEHEK, 1840 Rock Road, Cleveland, Ohio, who was the janitress at 2744 Mayfield Road from September, 1938, until April, 1944. It will be recalled previous investigation has reflected that PERL under the name WILLIAM MUTTERPERL resided at this address from November 2, 1944, until November 6, 1944. Mrs. CSEHEK advised that she was not connected with the apartment during the subject's residence there. However, she recommended Mrs. GERTRUDE GOODMAN, who has lived at that address for approximately thirteen years.

SA MOORE contacted Mrs. GOODMAN and furnished her photographs of the subject as well as other members of the ROSENBERG espionage parallel. However, Mrs. GOODMAN was unable to recall the subject and could not identify any of the photographs presented to her.

CV. F. O.
65-2730

Mrs. ANNA DADRIDGE, a cleaning woman for all the apartments in this building for the past fourteen years, was also furnished photographs of the subject and other members of the ROSENBERG espionage parallel. However, she was unable to furnish any information of value.

- P E N D I N G -

CV. F. O.
65-2730

L E A D S

No leads are being set forth in this report since all requests for investigation are being handled by teletype and/or letter.

Reference: Report of SA (A) EDWARD J. CAHILL 9-10-51, New York.

Report of SA JOHN B. O'DONOGHUE 7-20-51, Cleveland.

LEAVE CARD

Williams, Mitterperl

Time Clerk

Days Accum. 63 Hrs 0¾

Current 26

Total 89 0¾

from LWA 12-3-43

ANNUAL

Days	Hrs.	FROM—	TO—	Employ. Initial	Approved	TOTAL TAKEN Days	Hrs.	RECORD
		TOTAL TAKEN AT LWAL				10	2	Rm 6
	3	8:30 12-23-43	12:30	WM		10	5	Rm 6
-	¼	1:00 PM 1-3-44	5:00 PM	WM		4		Rm 6
-	½	8:30 1-4-44	9:00	WM		- 4½		
-	1	8:30 2-14-44	9:45	WM		- 5½		
-	½	9:00 1-4-44	9:30			- 6		
		2-26-44						
-	3	1:00 p.m 2-26-44	3:35 p.m	WM		1	1	
-	1	8:30 3-22-44	9:30	WM		1	2	
	1	8:30 1/10/44	9:30 AM	WM		1	3	
	½	8:30 2/8/44	9:00 AM	WM		1	4	
	1	8:30 2/2/44	9:30 AM	WM		1	4	
	½	8:30 2/23/44	9:00 AM	WM		1	4½	
	1	8:30 2/22/44	9:30 AM	WM		1	5	
3	0	8:30 AM 4/12/44	5:00 PM 5/5/44	WM		4	5	
	1	8:30 4/19/44	9:30 AM	WM		4	6	
		5/27/44						
	1	8:30 AM	9:30 AM	WM		4	7	
7		6/10/44 6:30	6/17/44 6:30	WM		11	7	
	1	8:30 7-8-44	5:30 7-8-44	WM		12		
1		7-22-44 8:30	7-22-44 5:30	WM		13	7	
1		8-29-44 8:30	8-29-44 5:00	WM		14	7	
	½	8-30-44 11:30	8:00	WM		14	7½	
5	½	8-28-44 8:30	5:00	WM		19	7½	
	1	8-9-44 8:30	8:52	WM		19		
	1	8:30 3-15-44	8:30 3-15-44	WM		19		

ANNUAL

Days	Hrs.	FROM—	TO—	Employ. Initial	Approved	TOTAL TAKEN Days	Hrs.	RECORD
1		9-22-44 8:30	9-22-44 5:00	WM		20	4	
	6	9-29-44 8:30	9-29-44 9:00	WM		21	2	
	1	9-30-44 8:30	9-30-44 9:00	WM		21	3	
		10-9-44 3:30	10-9-44 5:00	WM		21	5	
8	1	10-12-44 8:30	10-12-44 5:00	WM		21	4	
						29	5	

Accum. 34-7-45

SICK

Current 15-0-0

		9 AM 9:00 AM 11/2/44	10:00 AM	WM			2	

LEAVE WITHOUT PAY

ABSENCE WITHOUT PERMISSION

NOTE.—Employee must assure receipt of approval of his request before going on leave. Requests for leave without pay require approval ... [illegible] for other requests approval of section head is sufficient. All requests of section heads require approval of division chief. Sick leave in excess of 3 work days shall be supported by a certificate of a registered practitioner ... [illegible] titioner. For sick leave absences of 3 work days or less, the total of which shall not exceed 12 work days in any one calendar year, the employee's own statement on this form may be accepted.

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LEAVE CARD

Name Mutterperl, William — Days Hrs.

Eng. Asst. Res. Time Clerk — Accum. 2 1

Current 2

Total 7.9 1

Issued 11/8/44

ANNUAL

Days	Hrs.	FROM—	TO—	Employ. Initial	Approved	TOTAL TAKEN Days	Hrs.	RECORD
		B.L.W. date				21	4	JCG
		Jan 9, 1945						
6		10:30	5:00				6	JCG
4		1:40	5:00					JCG
		6-24-44				22		
		8:30	9:00			VOID		JCG
4		8/x/44				22		JCG
		8:30	9:00			VOID		
		5-10-44				20		JCG

ANNUAL

Days	Hrs.	FROM—	TO—	Employ. Initial	Approved	TOTAL TAKEN Days	Hrs.	RECORD

SICK

34-7-45

48-7-45

Total S.L.W. date 1944 — 2 JCG

LEAVE WITHOUT PAY

ABSENCE WITHOUT PERMISSION

NOTE - Employee must secure himself of approval of his request before going on leave. Requests for leave without pay require approval of Engineer [illegible] for other requests approval of section head is sufficient. All requests of [illegible] heads require approval of division chief. Sick leave in excess of 3 work days shall be supported by a certificate of a registered practicing physician or practitioner. For sick leave absences of 3 work days or less, the applicant's signed statement on this form may be accepted.

16- 32132-2 U. S. GOVERNMENT PRINTING OFFICE

FD-71
(1-10-49)

FEDERAL BUREAU OF INVESTIGATION

FORM No. 1
THIS CASE ORIGINATED AT: NEW YORK

FILE NO.: CV. 65-2730

REPORT MADE AT	DATE WHEN MADE	PERIOD FOR WHICH MADE	REPORT MADE BY
CLEVELAND	10-6-51	7-16,20,24,26,27; 8-6,9-28,29; 10-2-51	JOHN B. O'DONOGHUE dht

TITLE	CHARACTER OF CASE
WILLIAM PERL, wa.	ESPIONAGE - R (PERJURY)

SYNOPSIS OF FACTS:

Leave records, NACA, failed to indicate subject absent from work 7-29-44. Total leave recorded for year is twenty-two days. However, subject indicated in personnel memo he had taken twenty-eight days as of 11-9-44. July 29, 1944, a Saturday, was official work day as were all Saturdays during 1944. ROLF W. LANDAUER not known to be associated with PERL at NACA. Mrs. JOSEPH LEVINE denies any knowledge of the subject and/or Lexington Report. Investigation 2744 Mayfield Road negative.

- P -

Details:

MAX and HELENE ELITCHER have advised they had a dinner date at the Bird-In-Hand Restaurant in New York City with the subject, JULIUS ROSENBERG, and others sometime during September, 1944. They have recently, however, come to the conclusion that this dinner engagement most probably occurred toward the end of July, 1944.

The leave records of the Bureau of Ordnance, Navy Department, Washington, D.C., reflect

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This is the result of an FBI investigation and is not to be considered as a clearance.

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SECRET INFORMATION - [illegible]

FEDERAL BUREAU OF INVESTIGATION

Form No. 1
THIS CASE ORIGINATED AT NEW YORK FILE NO.

REPORT MADE AT	DATE WHEN MADE	PERIOD FOR WHICH MADE	REPORT MADE BY
NORFOLK	11/28/51	11/13,19/51	FRED A. COOTS pgb

TITLE	CHARACTER OF CASE
WILLIAM PERL, wa.	ESPIONAGE - R PERJURY

SYNOPSIS OF FACTS:

JOHN STACK, Assistant Head of Research, NACA, advised that according to his review of subject's written work while at NACA, Langley Field, there would be no necessity for his knowledge of Russian language. Mr. STACK advised translators have been available to scientific personnel at NACA since 1935. Library records at NACA deemed incomplete and failed to reflect that subject had signed out any material necessitating Russian translation. Investigation fails to reflect that any USSR representatives at Langley Field during period PERL and PASS employed there.

12/10/51
Ltr McInerney
Ltr NACA

APPROPRIATE AGENCIES AND FIELD OFFICES ADVISED BY ROUTING SLIP(S) OF DECL 55 DATE 3-15-78 BCW

- RUC -

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DETAILS:

AT HAMPTON, VIRGINIA

CHARLES F. BARNETT, Security Officer, National Advisory Committee for Aeronautics, advised that according to records, there is no indication that any USSR Representatives had been at Langley Field during the period PERL and PASS were employed there. Mr. BARNETT advised that the usual procedure is to photograph all foreign visitors who might come through for inspection tours or otherwise at NACA, Langley Field.

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SECRET INFORMATION

NF 65-514

Regarding the necessity for either PERL or PASS to have a knowledge of the Russian language to assist them in any scientific or mathematical translation while employed at NACA, Langley Field, Virginia, Mr. JOHN STACK, Assistant Chief of Research, NACA, Langley Field, Virginia, advised that he could see no necessity for any of his scientific men to have a knowledge of the Russian language in assisting them in their work. Mr. STACK reviewed written papers authored by subject PERL while at Langley Field and advised that from a review of these, he could see no necessity for PERL's studying the Russian language.

Mr. STACK advised that in 1945, the National Advisory Committee for Aeronautics, Langley Field, Virginia, employed one SAMUEL REISS as a Junior Aeronautical Engineer. He stated that REISS became a full time translator on January 6, 1936 and that he has personal knowledge of REISS's ability to translate Russian. Mr. STACK stated that as is the usual procedure, if one of his scientific men wishes to have a translation made from a foreign language to English to facilitate working on a problem, the person writes a written request and if deemed advisable, the supervisory person acting on the request has a translation made of the particular work. This English translation is then catalogued and made available to any of the scientists.

Doctor H. J. E. REED, NACA, advised that translators are available to all scientific men. He stated that it is possible that PERL might have wanted to study the Russian language to assist him in his work despite the availability of translators at NACA.

Through the cooperation of CHARLES F. BARNETT, Security Officer, Miss FRANCES MORELAND, Assistant Librarian, NACA, Langley Field, Virginia, reviewed all available references that subject PERL might have used during his work at NACA, Langley Field, with the object of determining whether or not subject had obtained technical books in the Russian language. Miss MORELAND advised that her records are not reliable enough to make a definite statement. She stated that on highly classified documents, the person desiring such documents would have had to sign a form that would have been written by the library section. She stated, however, that she has found no such forms. She further advised that she could find no indication that PERL either did or did not use Russian documents that had not been translated.

- REFERRED UPON COMPLETION TO THE OFFICE OF ORIGIN -

NF 65-514

ADMINISTRATIVE PAGE

It is being pointed out that the subject's work at NACA, Langley Field, Virginia, was supervised by ABE SILVERSTEIN, now of NACA, Cleveland, Ohio, and SAM KATZOFF, NACA, Langley Field, Virginia. It is further being pointed out that KATZOFF has been contacted by subject's attorney with the object of obtaining a character statement.

Unless advised to the contrary, KATZOFF will not be interviewed to assist in arriving at an answer as to whether or not subject PERL had to have knowledge of the Russian language to assist him in scientific or mathematical translations. It is further being pointed out that no lead is being set out to Cleveland to interview former superiors at Cleveland.

REFERENCE: New York letter to Bureau dated November 2, 1951.

- REFERRED UPON COMPLETION TO THE OFFICE OF ORIGIN -

FEDERAL BUREAU OF INVESTIGATION

Form No. 1
THIS CASE ORIGINATED AT [illegible] FILE NO.

REPORT MADE AT	DATE WHEN MADE	PERIOD FOR WHICH MADE	REPORT MADE BY
NORFOLK	11/28/51	11/13,19/51	[illegible] :gb

TITLE	CHARACTER OF CASE
WILLIAM [illegible], aka.	ESPIONAGE - R PERJURY

SYNOPSIS OF FACTS:

JOHN STACK, Assistant Head of Research, NACA, advised that according to his review of subject's written work while at NACA, Langley Field, there would be no necessity for his knowledge of Russian language. Mr. STACK advised translators have been available to scientific personnel at NACA since 1935. Library records at NACA deemed incomplete and failed to reflect that subject had signed out any material necessitating Russian translation. Investigation fails to reflect that any USSR representatives at Langley Field during period PEHL and HACK employed there.

- ABC

DECLASSIFIED BY 4913
ON 3/14/78 AP/gas

DETAILS: AT HAMPTON, VIRGINIA

CHARLES F. BARRETT, Security Officer, National Advisory Committee for Aeronautics, advised that according to records, there is no indication that any U.S.S.R. Representatives had been at Langley Field during the period PEHL and HACK were employed there. Mr. BARRETT advised that the usual procedure is to photograph all foreign visitors who might come through for inspection tours or otherwise at NACA, Langley Field.

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STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Director, FBI (65-59312) DATE: March 31, 1952

FROM : SAC, Cleveland (65-1744)

SUBJECT: WILLIAM PERL, aka.
ESPIONAGE - R
PERJURY

ReBulet 2/25/52 and Cincinnati letter 3/7/52.

Mr. H. BURTON BRACY, Security Officer, NACA, Cleveland, was contacted concerning his memorandum dated November 15, 1951, and he advised that he has been unable to secure further information concerning the RUARK report. He stated that the three photostatic copies which had been in the possession of NACA, Cleveland, had been destroyed by him on February 7, 1952.

A check was made then at the Library of the Lewis Flight Propulsion Laboratory in an effort to further determine the dissemination of the RUARK report at Cleveland; however, no records were located which would furnish any more light than that set forth in BRACY's memo.

It is noted that referenced Bulet suggests that the records for a Library inventory might be helpful in this regard; however, Miss ETHEL LYONS has advised that these records are maintained only temporarily and are always destroyed at least by the next inventory, which is conducted within six months. This source, therefore, is not available.

Miss LYONS was questioned concerning the RUARK report; however, she was unable to recall the document and stated she did not feel that any of the librarians would be able to be of assistance unless a copy were shown to them to refresh their memories in view of the vast amount of material that they handle in their daily work.

It will be recalled that ELEANOR K. WILKINS during previous interviews has stated that she recalls handling no documents referring to nuclear energy and, in particular, nuclear propulsion of aircraft. This point in particular was stressed with Miss WILKINS during the investigation concerning the LEXINGTON report.

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It is felt that if further inquiry is desired in this matter at NACA, Cleveland, the Bureau should arrange to have a copy of the RURAK report furnished to the Cleveland Office in

JBO'D:CGP

RECORDED - 126
INDEXED - 126

65-59312-684

APR 9 1952

cc: Cincinnati (65-1744)
New York (65-15387) (Enc.)

order that it might be presented to those persons interviewed to refresh their memories. At this point, it will of course be necessary to have the approval of the Atomic Energy Commission before this document can be handled by persons not having Atomic Energy clearance. The bulk of the librarians at NACA do not have such clearance.

Reference Cincinnati letter indicates that Mr. BERNARD BEAMAN, Chief, Nuclear Propulsion Branch, Power Plant Laboratory, Wright Field, has stated that NACA, Cleveland, advised him that no reproductions were made of the copy of the RUARK report which he furnished to NACA. As a matter of record, it is pointed out that the copy Mr. BEAMAN furnished was in fact sent to Major V. C. RETHMAN, the Air Materiel Command Liaison Officer at NACA. This apparently was not the same copy furnished to NACA, Cleveland, by Johns Hopkins Laboratory, copies of which were made at Cleveland.

****

Reference is made to New York letter dated March 18, 1952, instructing the Cleveland Office to request the NACA Payroll Office to prepare from their records a listing on a yearly basis of all moneys paid to subject together with the breakdown as to gross pay, retirement, tax and net pay.

In view of the work load of the NACA Payroll personnel, this listing which is set forth below was prepared by the Cleveland Office from NACA records, photostats of which were forwarded to New York by letter dated February 15, 1952.

As to the question posed concerning PERL's payroll sheet dated 1946, please be advised that a review of NACA records has indicated that this is in error and in fact this sheet is for the second half of 1945. A photostatic copy of the first period for 1946 is enclosed which reflects the subject was paid $22.41 gross less $2.15 for one day's work on July 2, 1946.

Miss PAT CLARK, Payroll Clerk, NACA, Cleveland, advised that the sign-in register with PERL's name would have been the only necessary authorization for such pay. A complete review of PERL's personnel file was again made without locating any record of his having returned from leave without pay for these two days.

Director, FBI

Mr. H. BURTON BRACY advised he has been told that PERL was meticulous in his demands for exact payment for work performed and, further, stated that he will check further into this matter to ascertain the reason for PERL's being paid for these two days.

Reference New York letter also indicates that the New York Office has conducted considerable investigation in an attempt to determine PERL's activities and whereabouts during the summer of 1946. Although Cleveland is not in possession of the New York AEAA report on PERL which covered the verification of his Columbia University education, it has in the past been PERL's contention that he attended Columbia University during the summer of 1946. It would be appreciated if the New York Office would advise the exact date when PERL entered Columbia in 1946 in order that further investigation may be conducted at Cleveland if necessary. You will be advised of the results of the investigation concerning PERL's working during June and July, 1946, at NACA.

The following is a summary of payments made to WILLIAM PERL by NACA, Cleveland:

DATE	GROSS	RETIREMENT	TAX	NET
1939	$1,461.05	$51.20		$1,409.85
1940	$2,108.21	$73.85		$2.034.36
1941	$2,499.90	$87.66		$2,412.24
1942	$2,940.71	$126.47		$2,814.24

DATE	GROSS	RETIREMENT	TAX	BONDS	NET
1943	$4,103.24	$173.83	$428.80	$712.50	$2,788.11
1944	$4,455.42	$190.08	$730.23	$662.50	$2,872.61
1945	$4,911.49	$224.70	$728.69	$800.00	$3,158.10
1946	$2,635.11	$131.88	$308.10	$75.00	$2,120.13

-3- 65-59312-684

Director, FBI

DATE	GROSS	RETIREMENT	TAX	BONDS	NET
1947	Nothing				
1948	$3,936.51	$228.38	$426.40		$3,281.73
1949	$8,004.23	$480.51	$695.70		$6,628.12
1950	$6,955.38	$385.89	$798.17		$5,771.32

A review of the file reflected that PERL was paid $524.64 less $79.97 tax in lieu of accrued annual leave and $2,148.52 which was his contribution to the retirement fund.

Cleveland, Ohio
January 4, 1950

MEMO, SAC

Re: WILLIAM PERL, aka.
ESPIONAGE - R

Period 12/5, 16, 19, 28 to 1/30, 10

Re Memo SAC of SA ARTHUR W. PEJEAU, 12/9/50, Bureau teletype to Cleveland 12/15/50, and New York teletype to Cleveland 12/16/50.

The following investigation was conducted by SAS THOMAS A. MAKI and EDWIN B. BIRNEY, and is a summary of the results of the investigation furnished to the Bureau and New York by teletypes dated December 20, 1950 and January 3, 1951.

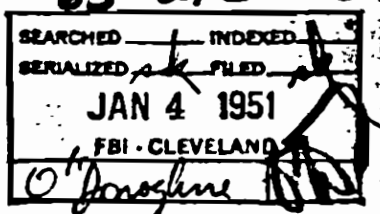
On December 15, 1950 JACK BROWN, Personnel Manager, NACA, Cleveland, furnished the following information regarding ELEANORE E. WILKINS to SA MAKI:

Born:	August 23, 1918, Kansas City, Missouri
Sister:	BOBETTE A. WILKINS, Maple Springs, New York, telephone Bemus Point 3006 (present address 1615 Mars Avenue, Lakewood, Ohio
Former address:	1518 Ansel Road, Cleveland, August, 1947
Education:	Webster Grove, Missouri High School Washington University, St. Louis, BA in English 1936-1940 Carnegie Library School, Pittsburgh, Pennsylvania 1941-1942, BS in Library Science
Employment:	Carnegie Library, Pittsburgh, 1942-1944 War Department, Air Force, Eglin Field, Florida, March, 1944 to February, 1946 Carnegie Library, Pittsburgh, February, 1946 to June, 1946 June, 1946 to December, 1946 "Travelled" Cleveland Public Library, Cleveland, Ohio, January, 1947 to August, 1947 NACA, August, 1947 to present. Classified as Librarian GS-7, Salary $3950. Last rating "Excellent".

EBB:mmk
65-2730

cc 65-2726

65-2730-394



MEMO, SAC

References:

HAZEL KING, American Gas Association, 420 Lexington Avenue, New York City. Met while at Eglin Field, Florida.
MARTHA BARNS, Instructor of WILKINS at Carnegie Library.
FRANCIS KELLEY, 4400 Forbes Street, Pittsburgh, Pennsylvania, Head of library school.

Mr. BROWN furnished a photograph of ELEANORE WILKINS which is being retained in the 1A jacket of subject's file.

On December 16, 1950 IVA BALDWIN, Assistant Manager, Evangeline Residence, 1518 Ansel Road, Cleveland, advised SA MAKI that ELEANORE E. WILKINS resided at the Evangeline Residence from January 26, 1947 to November 17, 1948. She was employed as of January 22, 1947 by the Business Information Bureau of Cleveland Public Library. Her parents resided at Library, Pennsylvania. Her father, O. L. WILKINS, died early in 1948 after which ELEANORE WILKINS endeavored to locate a home for her sister and mother. ELEANORE WILKINS subsequently resided at 1615 Mars Avenue, Lakewood, Ohio. Her former roommate and associate was one KATHLEEN BOLDT, residence c/o W. S. LEAPER, Landerwood Drive, RD #4, Chagrin Falls, Ohio, employed Millcraft Paper Company, 1927 East 19th Street, Cleveland. References EDITH CASE and ROSE BORNHILLER, both employees of the Cleveland Public Library. Miss BALDWIN stated that due to the illness of the father of ELEANORE WILKINS, Miss WILKINS frequently visited her home in Library, Pennsylvania.

WALTER ORE, Information Officer, NACA, Cleveland, residence apartment house on the Northwest Corner, 30th and Euclid Avenue, advised that he had been informed by JOSEPHINE CASE his secretary, that WILLIAM PERL and ELEANORE WILKINS were frequently seen at lunch together at NACA.

ETHEL V. LYONS, Chief Librarian, NACA, residence 3753 Riverdale, Rocky River, Ohio, residence telephone LA 1-0585, advised that she had first met ELEANORE WILKINS, Assistant Librarian, NACA, at the Cleveland Public Library in 1947 and associated closely with WILKINS since August, 1947 when WILKINS obtained her present position with NACA. Miss LYONS stated she believed that WILKINS had obtained her position at NACA through one PHYLLIS SNYDER, formerly Chief Librarian, NACA. PHYLLIS SNYDER, upon leaving NACA, went to Columbia University to obtain a library degree and then accepted a position as a County Librarian in Fresno, California. PHYLLIS SNYDER is presently believed to be employed by the State of North Carolina as a librarian, possibly in public relations work. Miss LYONS stated that WILKINS was a conservative intellectual and a restless person who was not too happy, and that WILKINS desired to attend Columbia

University to obtain an advanced degree in Library Science.

Miss LYONS stated that the sister and mother of ELEANORE WILKINS came to Cleveland for a short time in the Fall of 1947 or 1948 and then moved to a cottage near Chautauqua Lake, New York and that WILKINS' sister had worked during that time at Jamestown, New York. The mother and sister of WILKINS then returned to Cleveland about November 1, 1950. WILKINS resided at 1615 Mars Avenue, Lakewood with one JEAN SMITH SINETSKY who was formerly a library assistant at NACA until October, 1950. JEAN SMITH SINETSKY, according to Miss LYONS, is presently employed in New York City by the Public Library, and is seeking a position with the Kellex Company, an AEC facility in New York.

Miss LYONS stated that she had observed PERL and WILKINS together many times in the NACA Library and that WILKINS was very attentive to PERL and would "beat the ears off any girl who wanted to wait on him". Miss LYONS stated she had no information regarding the association of PERL and WILKINS outside of the NACA Library.

Miss LYONS stated that WILKINS had been considering attending Columbia University and seeking a job in the New York area, and that WILKINS was interested in obtaining a U. S. Fulbright Scholarship for study in a foreign school. Miss LYONS stated that WILKINS has not been "cleared" and does not have access to "secret" material or "classified AEC" material but does have access to "confidential" and "restricted" material.

Miss LYONS commented that WILLIAM PERL was like a "pack rat" in accumulating documents from the NACA Library and that some of the material apparently had not been charged out, and that they had some difficulty in having it returned.

Miss LYONS furnished the names of the following library assistants presently employed at NACA:

Mrs. ELEANOR SCADDING

Mrs. EVELYN DALZELL

Miss MARGARET MIHAK

Miss JOANNE FOLK

Miss BARBARA BACON

Mrs. MARGARET HEIDENGARD

MEMO, SAC

Miss KATHLEEN BOLDT, employed at Millcraft Paper Company, 1927 East 19th Street, Cleveland, was interviewed on December 19, 1950. She stated that she had been a roommate of ELEANORE WILKINS for more than a year at the Evangeline beginning January, 1947, and that WILKINS had been a close friend of one Miss CROOKSTON who had formerly worked with WILKINS at the Cleveland Public Library. Miss CROOKSTON is presently employed by Meldrun & Fewsmith, Carnegie Hall Building, Cleveland, Ohio.

Miss BOLDT stated that WILKINS "dated" PERL occasionally and admired PERL very much. She stated that WILKINS was very close about her personal affairs but that she used to speak about PERL in connection with her work at the NACA Library and stated that she always endeavored to find the material that PERL desired in the NACA Library. Miss BOLDT stated that WILKINS on her recent trip to New York found that she could not afford the Library Science course that she wanted to take at Columbia University but that since her return to Cleveland has received "some sort of offer". WILKINS is also considering attending Western Reserve University in Cleveland. WILKINS reportedly attended a number of "lectures" while in New York. Miss BOLDT stated that WILKINS, during the first year she had known her, visited her mother and sister in Library, Pennsylvania but that her mother and sister now reside with WILKINS on Mars Avenue in Lakewood, Ohio.

On January 3, 1951 Miss BOLDT advised that on Christmas Eve, 1950, WILKINS had informed her that she had seen PERL on her recent trip to New York and that PERL had informed her that he had recently remarried his former wife.

The Cleveland indices contained no information regarding ELEANORE E. WILKINS, PHYLLIS SNYDER, or JEAN SMITH SINETSKY.

The following descriptive information regarding ELEANORE E. WILKINS was obtained from the records of NACA and the Evangeline Residence:

Born:	August 23, 1918, Kansas City, Missouri
Residence:	1615 Mars Avenue, Lakewood, (1950)
Previous residences:	1518 Ansel Road, August, 1947
	The Evangeline, 1588 Ansel Road - January 26, 1947 to November 17, 1948
Race:	White
Sex:	Female
Height:	5' 10"
Weight:	130 pounds
Hair:	Dark brown
Characteristics:	Low forehead; rimless glasses; fracture of right ankle at age 15; slight limp

MEMO, SAC

Religion:		Presbyterian
Occupation:		Librarian
Relatives:	Sister:	BOBETTE A. WILKINS, Maple Springs, New York, Phone Bemus Point 3006
	Father:	O. L. WILKINS, Library, Pennsylvania died early 1948
Education:		Webster Grove, Missouri High School 1936-1940 Washington University, St. Louis, BA English 1941-1942 Carnegie Library School, Pittsburgh, Pennsylvania, BS Library Science
Employments:		1942-1944 Carnegie Library, Pittsburgh 3/44-2/46 War Department, Air Force, Eglin Field, Florida 2/46-6/46 Carnegie Library 6/46-12/46 "Travelled" 1/47-8/47 Cleveland Public Library, Business Information Bureau, began 1/22/47 8/47 to present NACA, Librarian
References:		HAZEL KING, American Gas Association, 420 Lexington Avenue, New York. Excellent while at Eglin Field, Florida MARTHA BARNS, Instructor at Carnegie Library FRANCIS KELLEY, 4400 Forbes Street, Pittsburgh, Head of Library School KATHLEEN BOLDT, c/o. W. S. LEAPER, Landerwood Drive, Route 4, Chagrin Falls, Ohio, Employed Millcraft Paper Company, 1927 East 19th Street EDITH CASE, Cleveland Public Library ROSE VORWELLER, Cleveland Public Library

Photograph of ELEANORE WILKINS in 1-A jacket of subject's file.

EDWIN B. BIRNEY
SA

Cleveland, Ohio
February 27, 1951

MEMO, SAC:

RE: WILLIAM PERL, wa.
ESPIONAGE - R

Re: XP - 81

In attempting to establish that PERL had access to a memo dated February 1, 1944, at Santa Monica, California, written by EDWIN P. HARTMAN, West Coast Representative, N.A.C.A., the following were interviewed:

ETHEL V. LYON, Chief Librarian, N.A.C.A., personally made a thorough search of the N.A.C.A. Library and was unable to find a copy of HARTMAN'S memo. She did, however, locate several memos pertaining to the XP-81 among them a letter written by HARTMAN; however, all of this material was dated 1945 and later.

CARLTON KEMPER, Executive Engineer, Office of Chief of Research, advised that HARTMAN'S memo was sent to him from Washington Headquarters in February, 1944, and was signed for by his ex-secretary, Mrs. ALMIRA ELLIOTT, now deceased. According to KEMPER, she died in 1949 of cancer. KEMPER recalled after viewing the memo that upon receipt of it he sent it directly to the Altitude Wind Tunnel and most probably to AL YOUNG, who is now in charge of one branch of the Altitude Wind Tunnel. KEMPER recalled that complete arrangements were made for testing the power plant of the XP-81 but no actual work was done.

AL W. YOUNG was interviewed and advised that he vaguely recalled the preparations for testing the power plant of the XP-81. He stated that in 1944 the Altitude Wind Tunnel was headed by ABE SILVERSTEIN and all documents which came to YOUNG would have to clear through SILVERSTEIN. He stated he had no knowledge of PERL'S being involved in the preliminary work on the XP-81 but stated that PERL was quite close to SILVERSTEIN and could have had knowledge of it. He stated he was positive PERL worked on the

JBO'D:CGP
65-2730

65-2726
65-2733

65-2730-431

SEARCHED ____ INDEXED ____
SERIALIZED ____ FILED ____
FEB 27 1951
FBI - CLEVELAND

MEMO, SAC:

preliminary plans for testing the XP-97 and recalled that all data were cleared through SILVERSTEIN on that plane also. It is to be noted that PERL has denied any knowledge of any Vultee aircraft. The XP-97 is a Vultee plane. YOUNG also stated that the XP-81 project was assigned to G. MERRITT PRESTON, who is now in the Flight Plans Room, 201 Flight Research Section, PAX telephone 4271.

It will be recalled that SILVERSTEIN in an interview with the writer advised he recalled the preparations for testing the XP-81 and was quite certain that PERL had nothing to do with it.

JOHN B. O'DONOGHUE
SA

SAC, NEW YORK

CONFIDENTIAL

January 17, 1952

DIRECTOR, FBI

RECORDED - 41

WILLIAM PERL, aka William Butterpearl (Bufile 65-59312)
ESPIONAGE - R; PERJURY (NY 65-15387)

[redacted] (Bufile 100-360455)

(b)(1)

[redacted]

Enclosure

cc: Washington Field (Enclosure) (65-5543)
Los Angeles (Enclosure) (65-5075)
Buffalo (Enclosure) (65-2003)
Cleveland (Enclosure) (65-2730)

EFE:bc

Classified by 4913 APIII
Exempt from GDS, Category 2.5
Date of Declassification Indefinite
3-14-78

65-59312-650

FBI

MAILED 4
JAN 17 1952
COMM-FBI

[redacted]

CONFIDENTIAL

FEB 15 1952

UNRECORDED COPY FILED IN

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS
1724 F STREET, NORTHWEST
WASHINGTON 25, D. C.

TELEPHONE: LIBERTY 8-6700

LANGLEY AERONAUTICAL LABORATORY
LANGLEY FIELD, VA.

AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIF.

LEWIS FLIGHT PROPULSION LABORATORY
CLEVELAND AIRPORT, CLEVELAND 11, OHIO

January 8, 1952

Mr. John Edgar Hoover
Director, Federal Bureau
of Investigation
U. S. Department of Justice
Washington 25, D. C.

Subject: William Perl aka
William Butterperl
Espionage - R
Perjury
FBI file No. 65-59312

EXPEDITE PROCESSING

Dear Sir:

Reference is made to your letter of December 5, 1951.

I am transmitting herewith a translation of the Russian notes forwarded to NACA as an enclosure to your letter. Since the enclosed translation was made by one familiar with aeronautical terms, it may supplement the translation available to you.

Very truly yours,

Robert L. Bell
Security Officer

Enclosure

RECORDED - 41 65-59312-650
INDEXED - 41
1-23-52

[redacted]

(b)(1)

ENCLOSURE 65-59312-650

SECRET
Security Information

[redacted]

SECRET
Security Information

[redacted]

[redacted]

(b)(1)

65-59317-650

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS
1724 F STREET, NORTHWEST
WASHINGTON 25, D. C.

TELEPHONE: LIBERTY 8-6700

LANGLEY AERONAUTICAL LABORATORY
LANGLEY FIELD, VA.

AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIF.

LEWIS FLIGHT PROPULSION LABORATORY
CLEVELAND AIRPORT, CLEVELAND 11, OHIO

February 5, 1952

Director
Federal Bureau of Investigation
U. S. Department of Justice
Washington 25, D. C.

Dear Sir:

In response to the oral request of Special Agent Elmer Emrich, I am enclosing a copy of a memorandum dated June 15, 1945, from the Langley Laboratory Security Officer for the Engineer-in-Charge.

This memorandum concerns the loss of a Secret document entitled "Guided Missiles - Development, Status, and Availability."

Very truly yours,

ENCLOSURE BEHIND FILE

Robert L. Bell
Security Officer

Enclosure

RECORDED - 51
INDEXED - 51

EX-164

65-39312-668

59 MAR 11 1952

Julius Rosenberg Et Al.

Referral

National

Aeronautics

And Space

Administration

No. 18

MR. MILES WAGGONER
FREEDOM OF INFORMATION OFFICER
NASA
WASHINGTON, D.C. 20546

REFERRAL

Reviewed by: BAK/JER

AGENCY NASA

PACKET 18

	Subject and File Number	Serial	Date	Document Description	No. of Pages Actual	Released
1	WM. PERL (HQ) 65-59312	481	7/12/51	CLEVELAND LETTER TO HQ W/ENCLOSURES	1/99	1/99
2	WM. PERL (HQ) 65-59312	481	7/27/51	HQ LETTER TO SAC, CLEVELAND.	5	5
3	WM. PERL (HQ) 65-59312	EBF 939	7/16/51	LAB REPORT W/ENCLOSURES	2/100	2/100
4						
5						
6						
7						
8						
9						
10						
11						
12						

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Director, FBI ATTENTION MECHANICAL DIVISION DATE: July 12, 1951

FROM : SAC, Cleveland AIR MAIL SPECIAL DELIVERY (RMRRR)

SUBJECT: [redacted] [TS] 61 STRICTLY CONFIDENTIAL ~~TOP SECRET~~

WILLIAM PERL, aka.
ESPIONAGE - R; PERJURY
(Bufile 65-59312)

Rebulet dated 6/19/51.

134780

There are enclosed herewith the original letter from the Army Air Force dated August 4, 1944 concerning research on pilotless guided missiles; two copies of letter dated August 16, 1944 from NACA, Washington, to NACA, Cleveland, authorizing research on said missiles; and copies of research authorization number E-110. In addition there is enclosed a folder entitled "Ram Jet Conferences Minutes," which includes the minutes of such conferences from July 24, 1944 through April 13, 1945 inclusive.

No record could be located in NACA files concerning the JB-2 bomb; however, a thorough search of Ram Jet material revealed the enclosed conference minutes and letters described above. It will be noted that these minutes are primarily concerned with the construction of robot bombs and would indicate WILLIAM PERL was well aware of all research being conducted in that field.

EXPEDITE PROCESSING

It is requested that the Bureau photograph or photostat the enclosed material and furnish copies to the New York and Cleveland Divisions as well as retain a copy for Bureau files. It is pointed out that the minutes of July 24, 1944 include calculations and curves on Ram Jet studies which were prepared by WILLIAM PERL and Mr. L. RICHARD TURNER. The handwritten analyses appear to be in PERL's handwriting and it is suggested therefore the Bureau may desire photographs of this section in the event it is more feasible to photostat the entire minutes.

ENCLOSURE FROM [illegible] AND RESOURCES

It is pointed out that the enclosed material has been loaned to this office and it is therefore desired that it be returned as quickly as possible.

ADVISE BY ROUTING SLIP(S) C[illegible]

DATE 7/16/51

JBO;pjf
65-2730

cc: Bufile 65-59543
2 New York (65-15387)
Cv file 65-2726
65-2751

Enc. (RMRRR)

65-59312-481

RECORDED - 1

JUL 14 1951

INDEXED - 1

~~TOP SECRET~~

COPY AND SPECIMENS RETAINED IN LAB.

FOR LAB. ACTION AND REPORT

7-16-51 pjf

Secret

INDEX CR FILES

UNRECORDED COPY FILED IN

INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE.

Classified by [illegible]
Exempt from GDS, Category [illegible]
Date of Declassification Indefinite

65-59312-481

AERL

SECRET

Washington, D. C.
August 17, 1944

From NACA
To Cleveland

Subject: Development of guided missile for Army Air Forces

Reference: NACA letter of August 16, 1944, REL.lin

1. There are forwarded herewith six copies of the research authorization to cover the preparation of design studies for the subject investigation. Research Authorization No. E-110 has been assigned for this project.

2. Research Authorizations Nos. E-111 and E-112 have been reserved to cover the construction of experimental models and the tests of such models respectively. It was considered that this work should be done under three separate research authorizations because of the broad scope of the request of the Army Air Forces.

3. It is requested that following the submission of preliminary design studies to the Army Air Forces for review, the laboratory submit drafts of research authorizations to cover the construction and testing phases of this project. It is requested that these drafts be in this office by September 5 if possible.

G. W. Lewis,
Director of
Aeronautical Research.

Enc.

REL.lin

SECRET

SECRET

SECRET

CONFIDENTIAL CLASSIFICATION SECRET

CONFIDENTIAL — RESTRICTED

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

RESEARCH AUTHORIZATION No. [illegible]

Title: Preliminary Design Study in Development of Special Vehicle for Army Air Forces

Aircraft Engine Research Laboratory

Approved:

Issued August 17, 1944

G. W. Lewis

Director of Aeronautical Research

In accordance with authority of Executive Committee, March 19, 1942.

Purpose of investigation (Why):

To cooperate with the Army Air Forces in the development of a vehicle meeting special Army requirements.

Brief description of method (How):

Preliminary design studies will be made of possible vehicles and propulsion systems to accomplish the performance requested by the Army Air Forces.

Remarks: Requested by the Army Air Forces, Materiel Command, in letter dated August 4, 1944, reference Department 50, Wright Field, Dayton, Ohio.

Date of report: Publication:

Completed:

Form No. 18

Confidential — Investigation secret

AERL

...ONED AND RETURNED TO THE
...ONAL ADVISORY COMMITTEE FOR AERONAUTICS
...venue, N.W., Washington 25, D.C.

August 17, 1944

TO: National Advisory Committee for Aeronautics

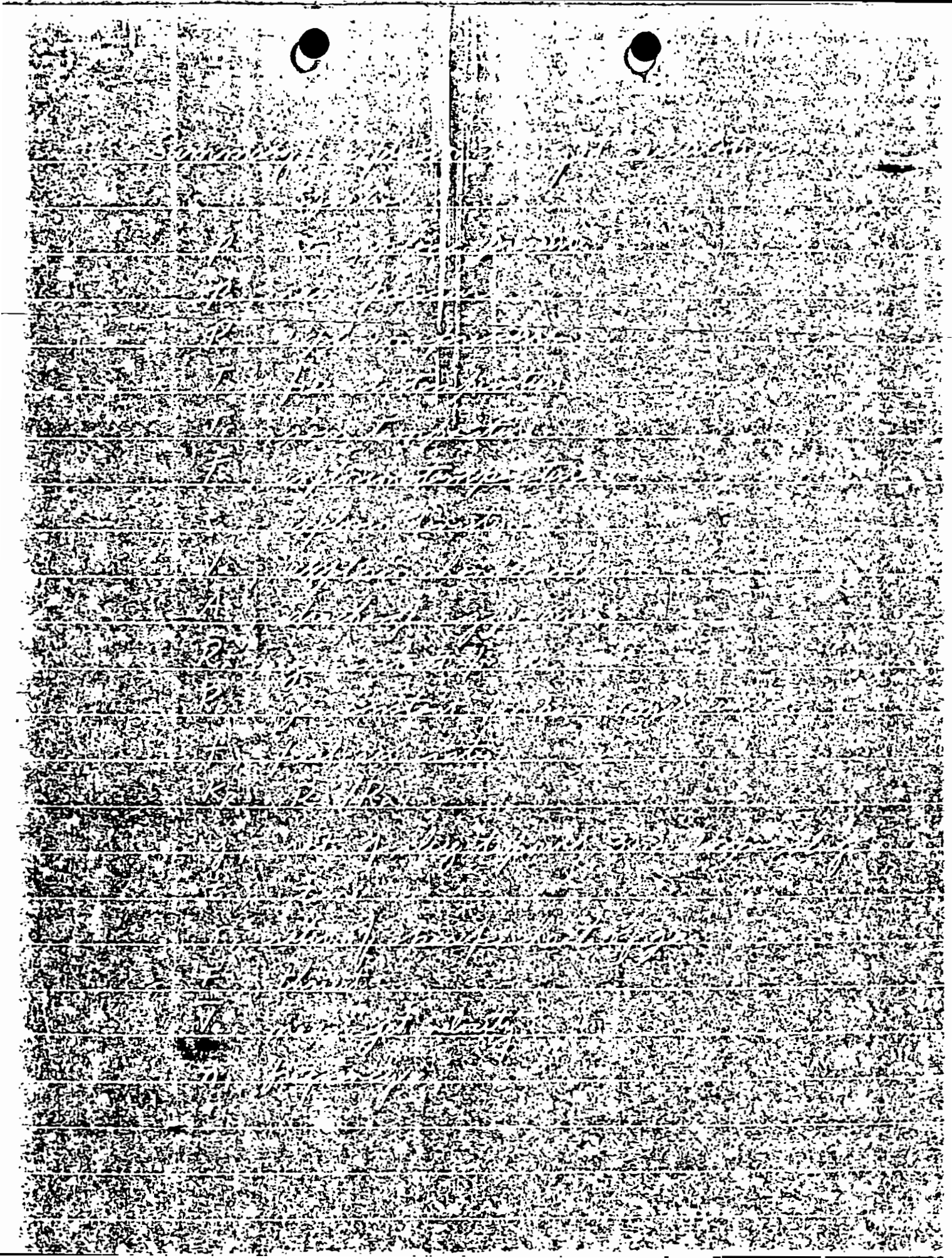
From: Cleveland

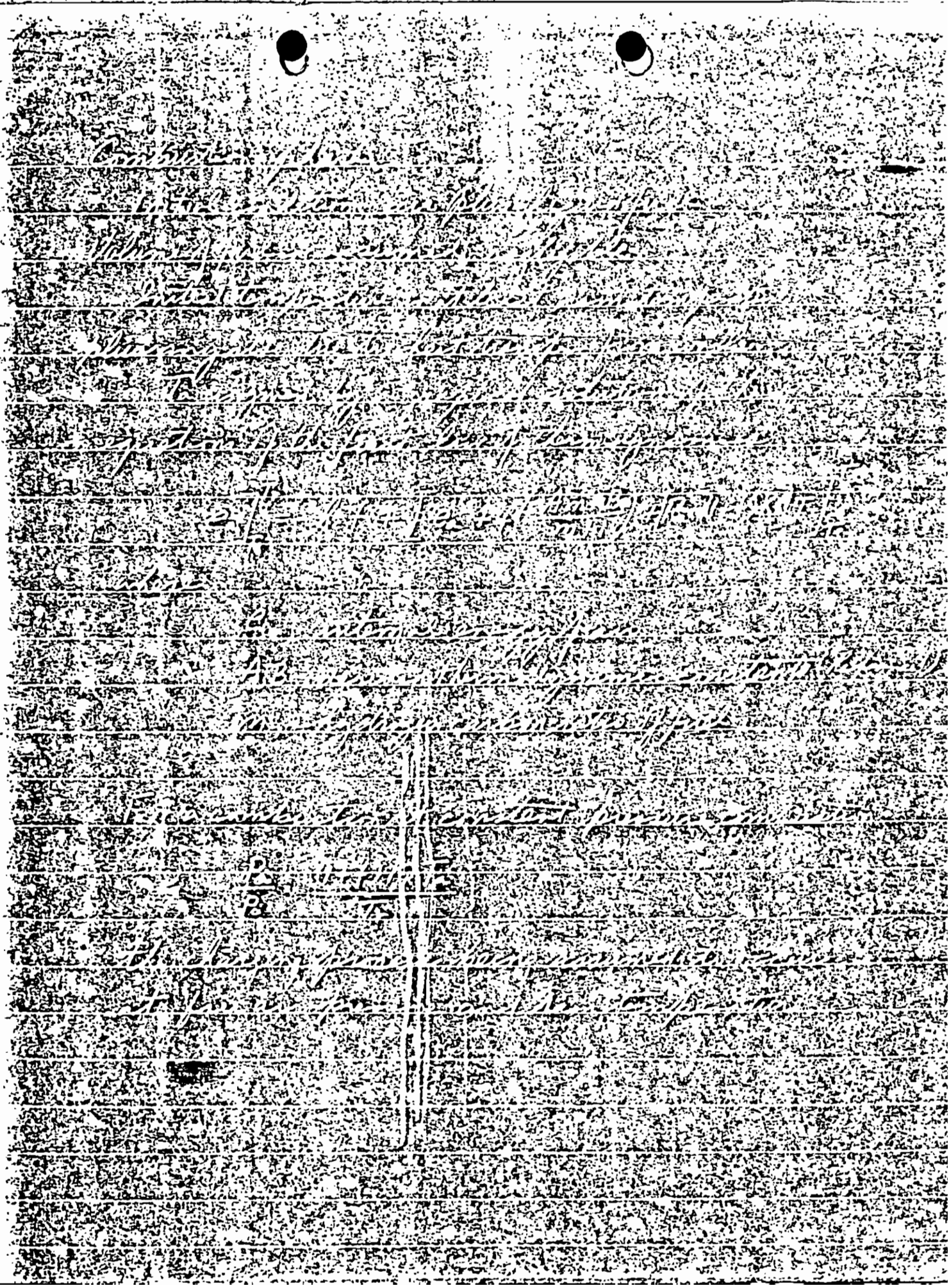
Letter dated August 17, 1944 transmitting Research Authorization No. E-110 entitled "Preliminary Design Study in Development of Special Vehicle for Army Air Forces".

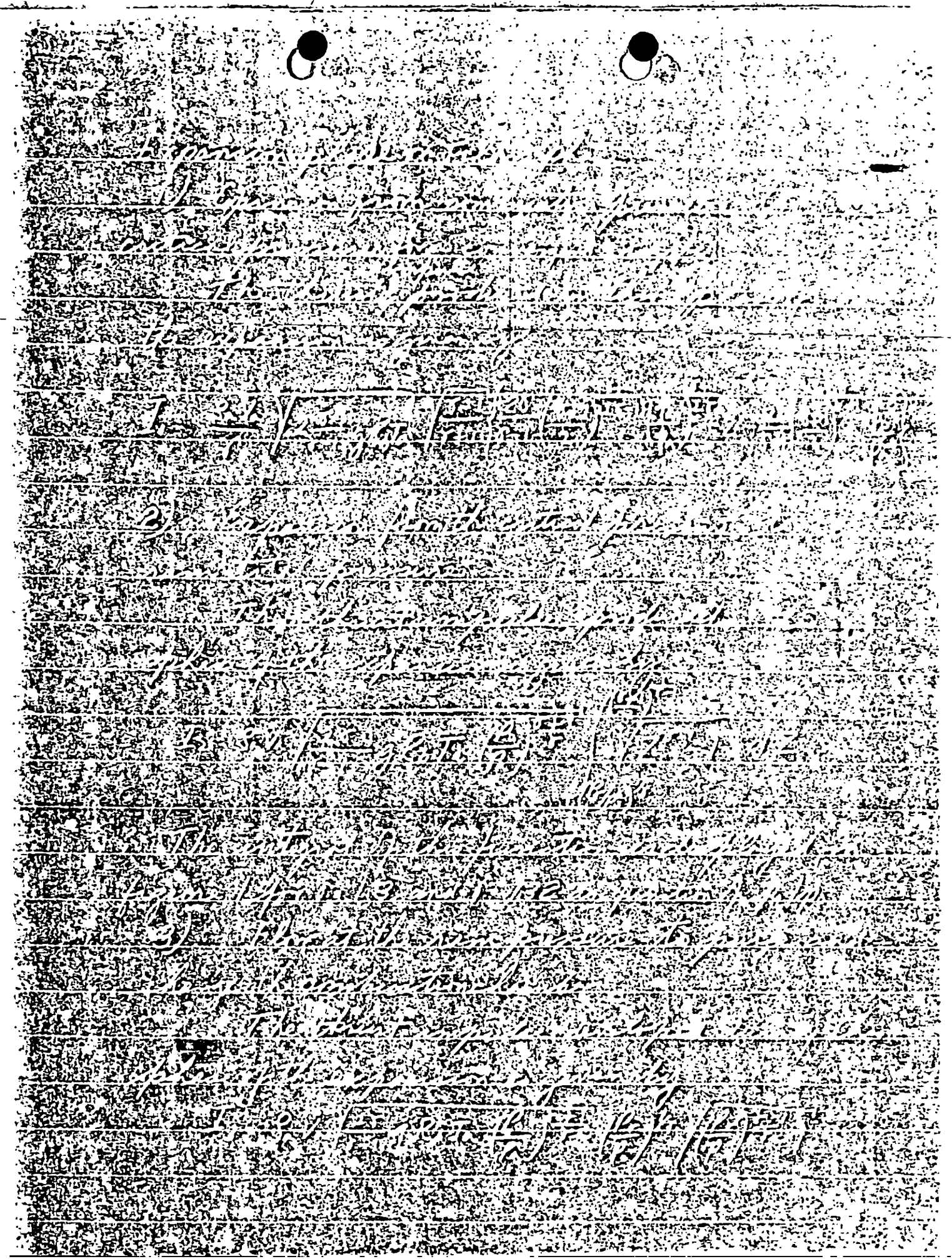
It is understood that the document covered by this receipt contains information affecting the national defense of the United States within the meaning of the Espionage Act (USC 50:31 and 32). Full responsibility is assumed for the safe handling, storage, and transmittal elsewhere of this document in accordance with security regulations.

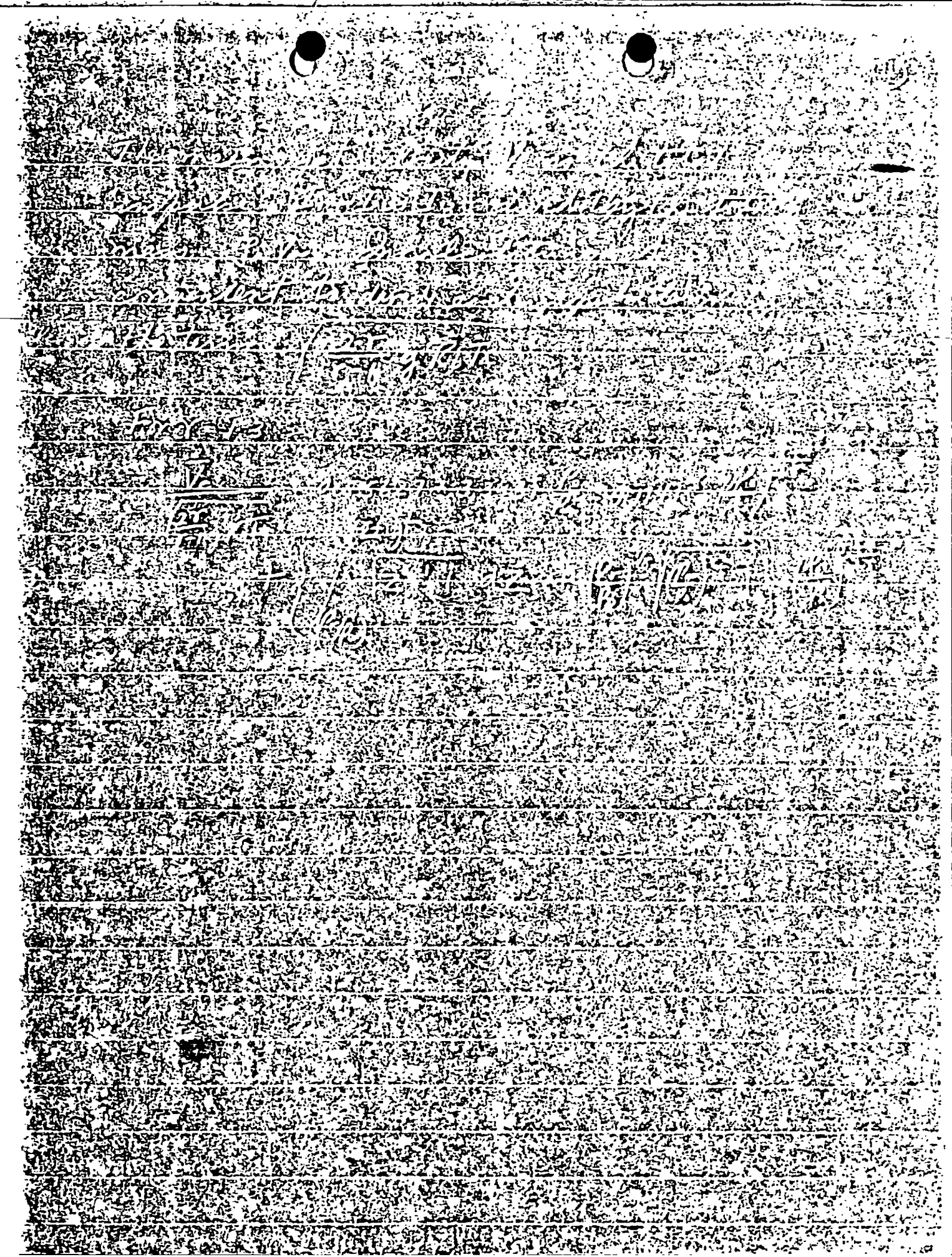
Signed [illegible]

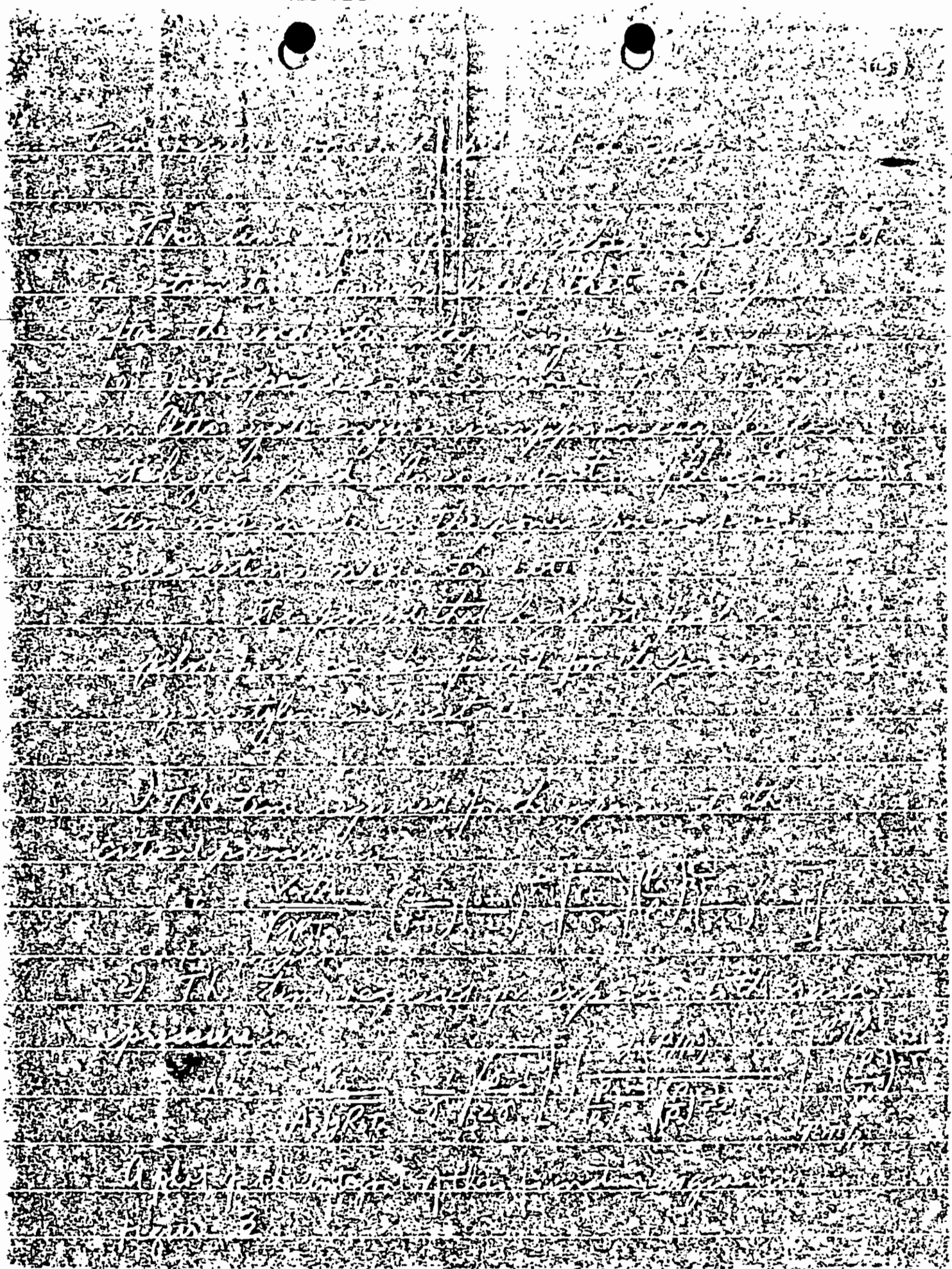
Date [illegible]

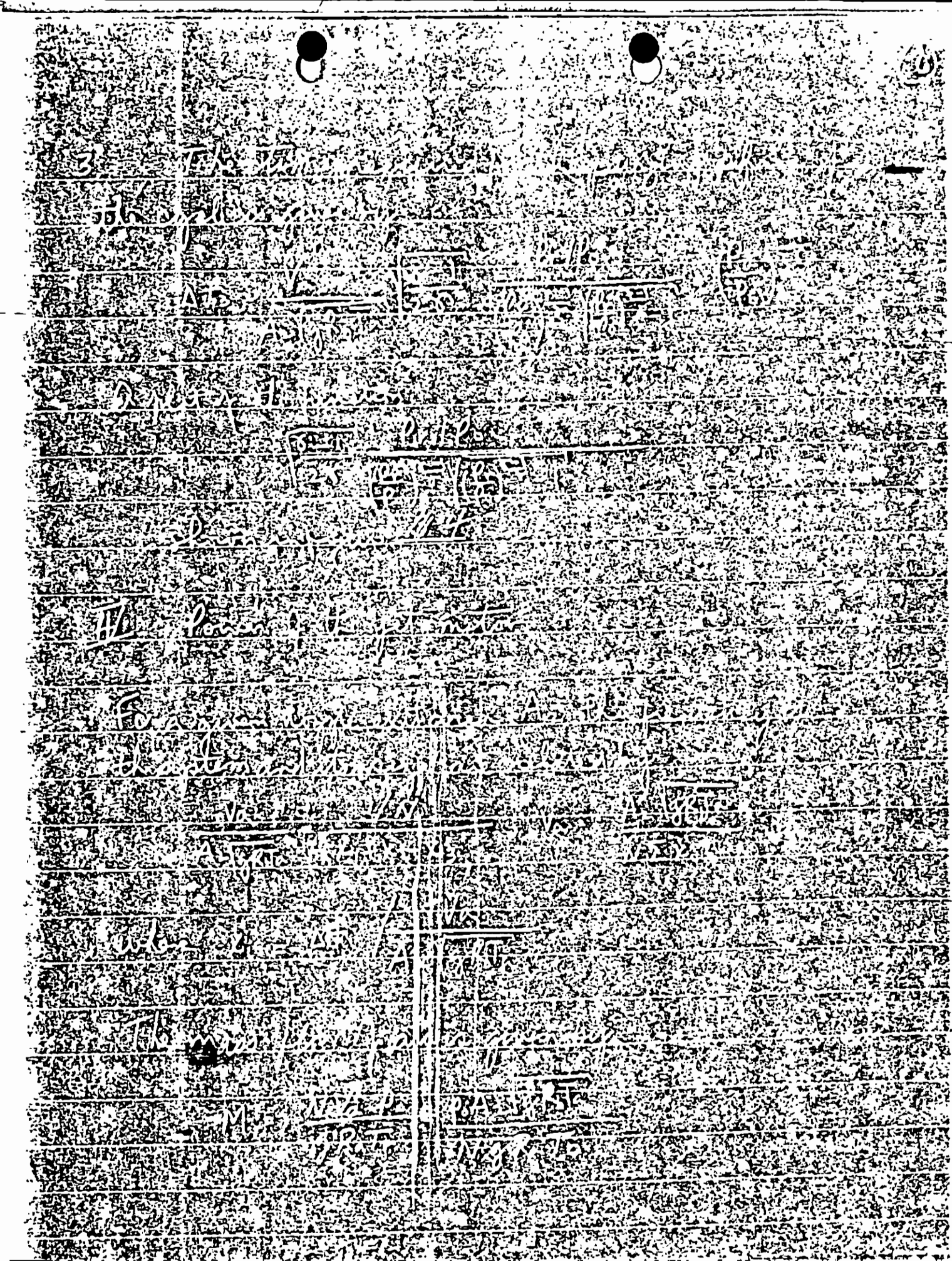


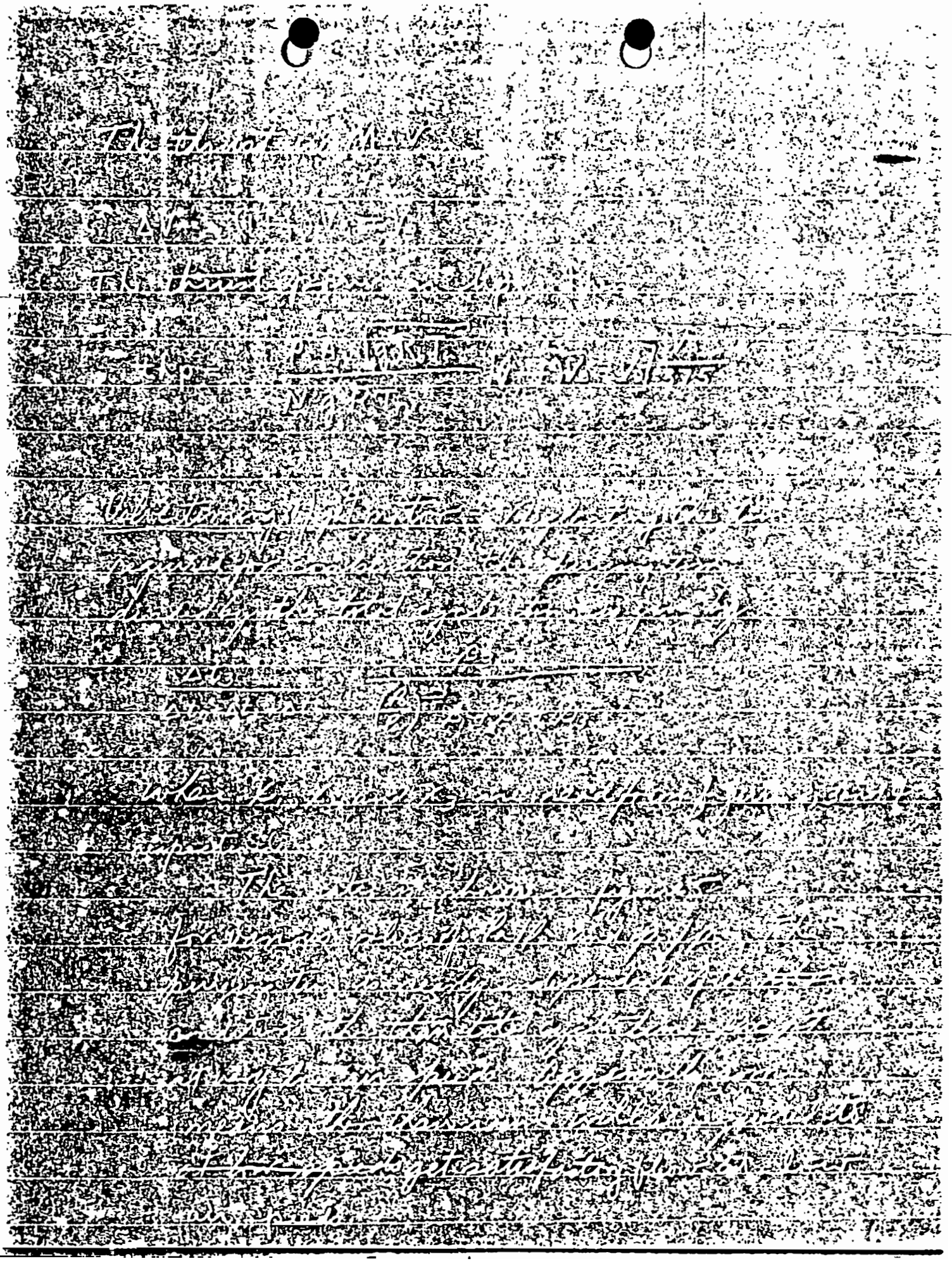


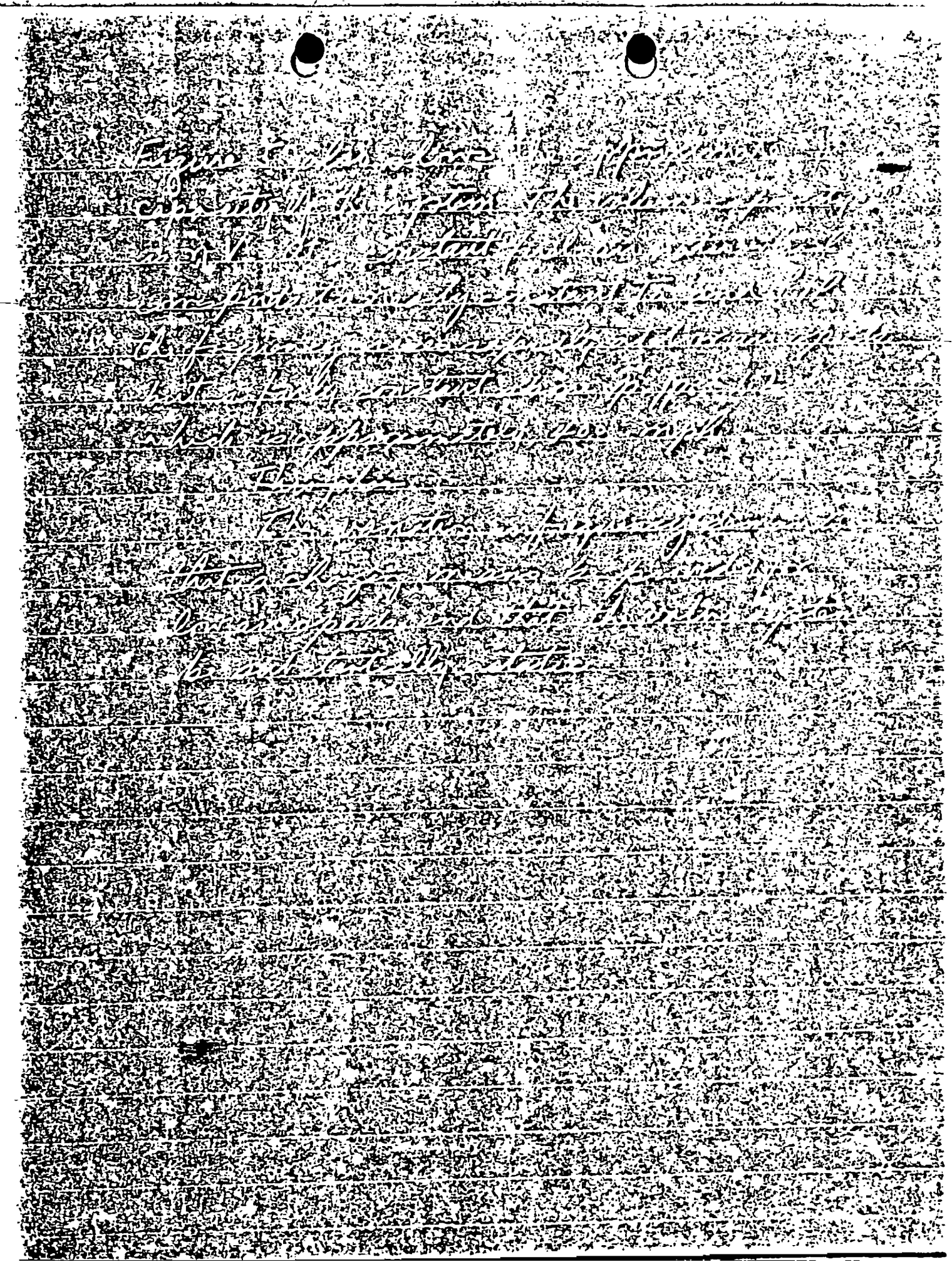












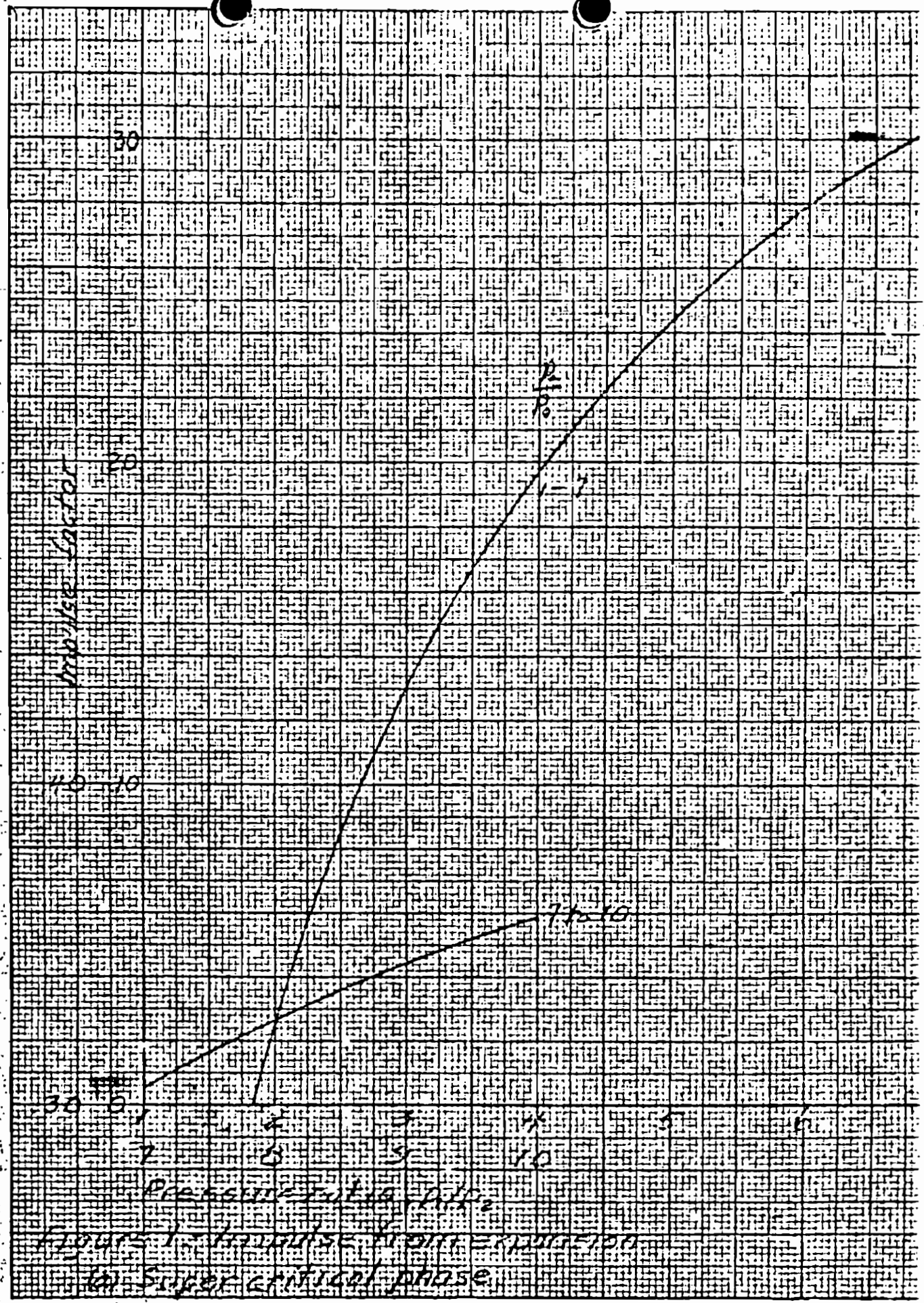


Figure 1. Pressure ratio variation
(a) Super critical phase

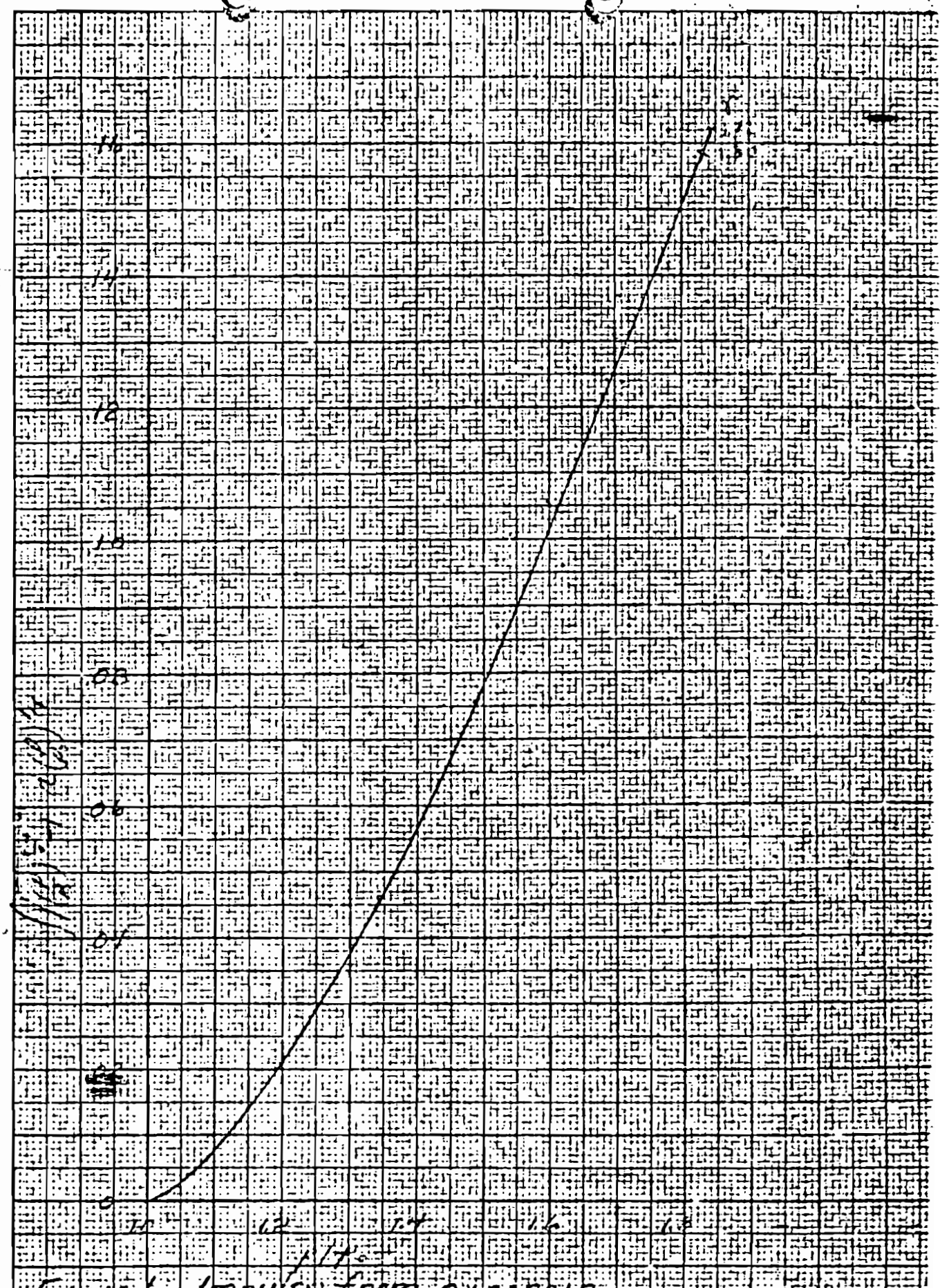


Figure 1.- Impulse from expansio

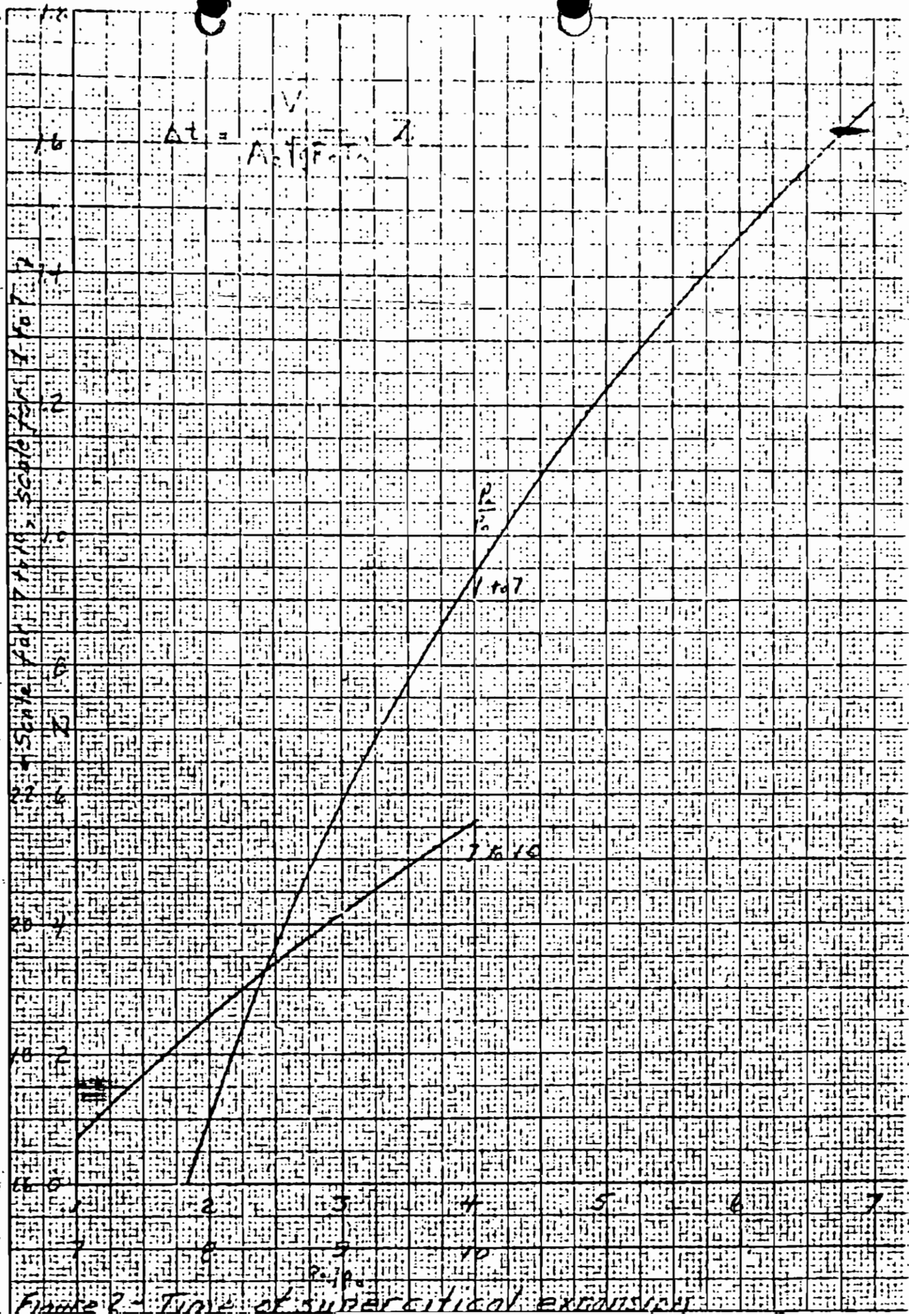
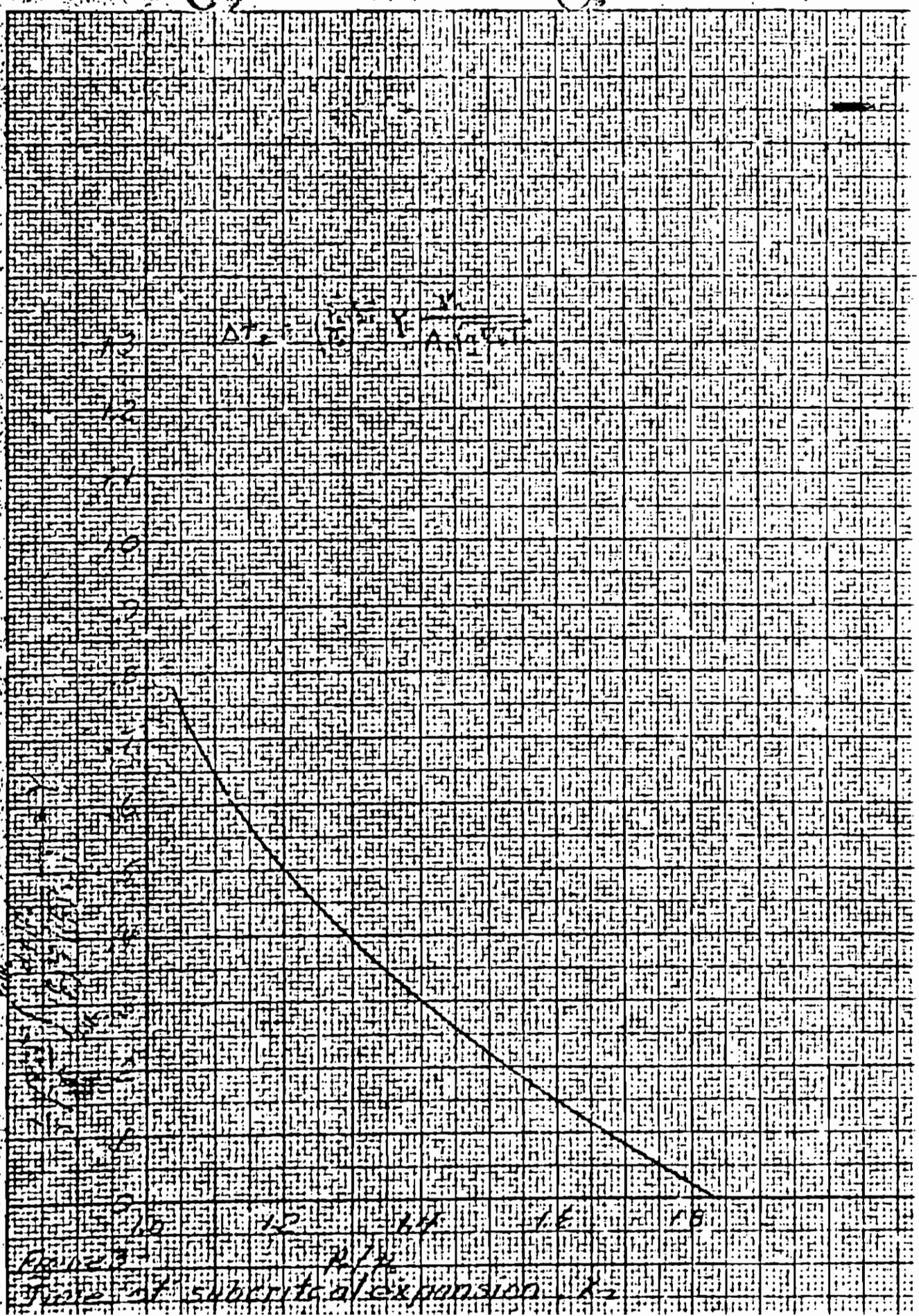


Figure 2 - Type of supercritical extrusion


$\Delta T = \left(\frac{\gamma - 1}{\gamma}\right) \frac{M}{A\sqrt{\gamma R T_0}}$
12
14
16
Pressure at adiabatic expansion λ_2

$$\Delta t_2 = \left(\frac{r_2^2}{r_0^2}\right)^{\frac{r_0^2}{2r_2^2}} W \frac{V_p}{A_1 \sqrt{r_0 r_2}}$$

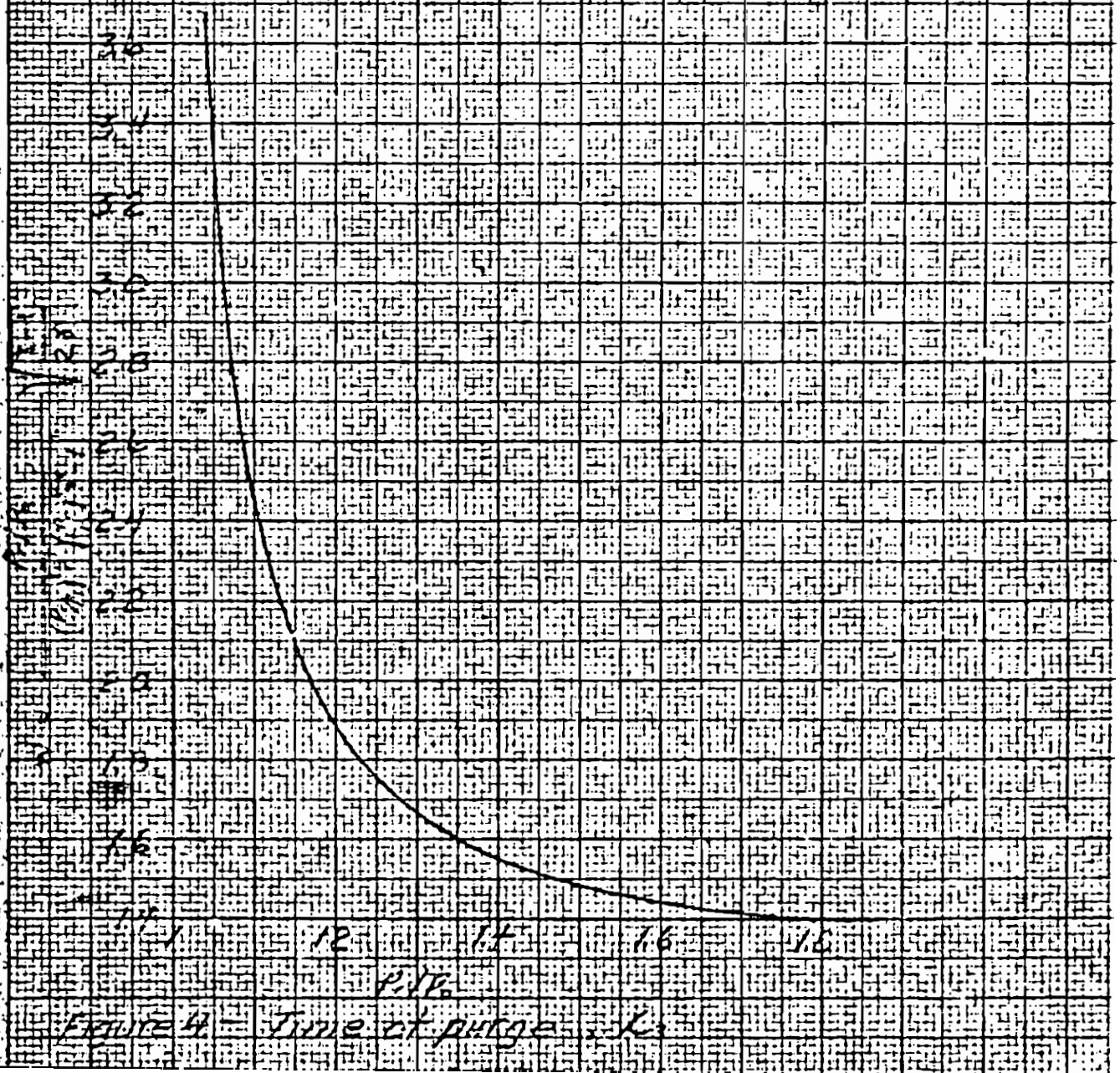


Figure 4 — Time at purge, t_2

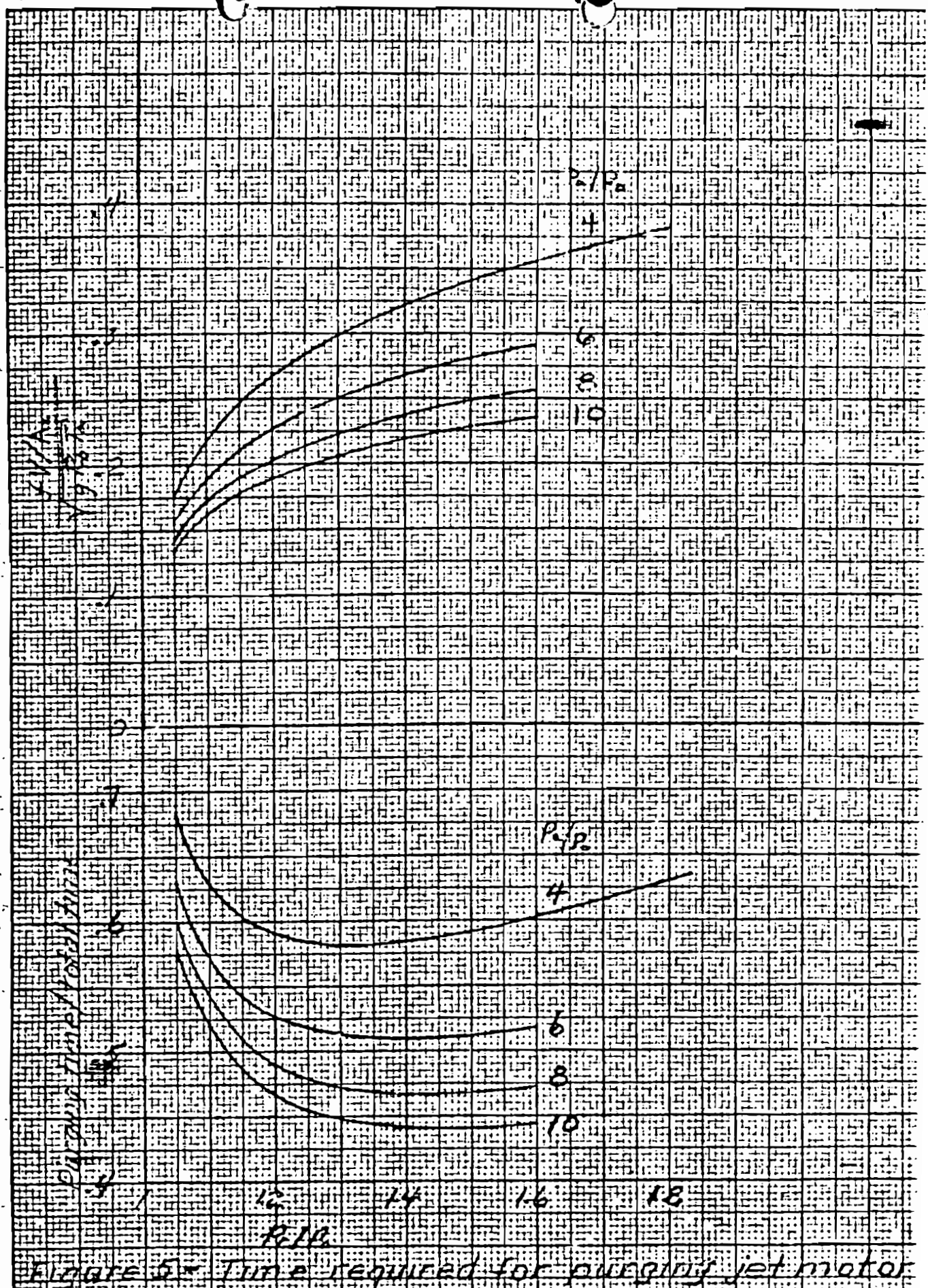
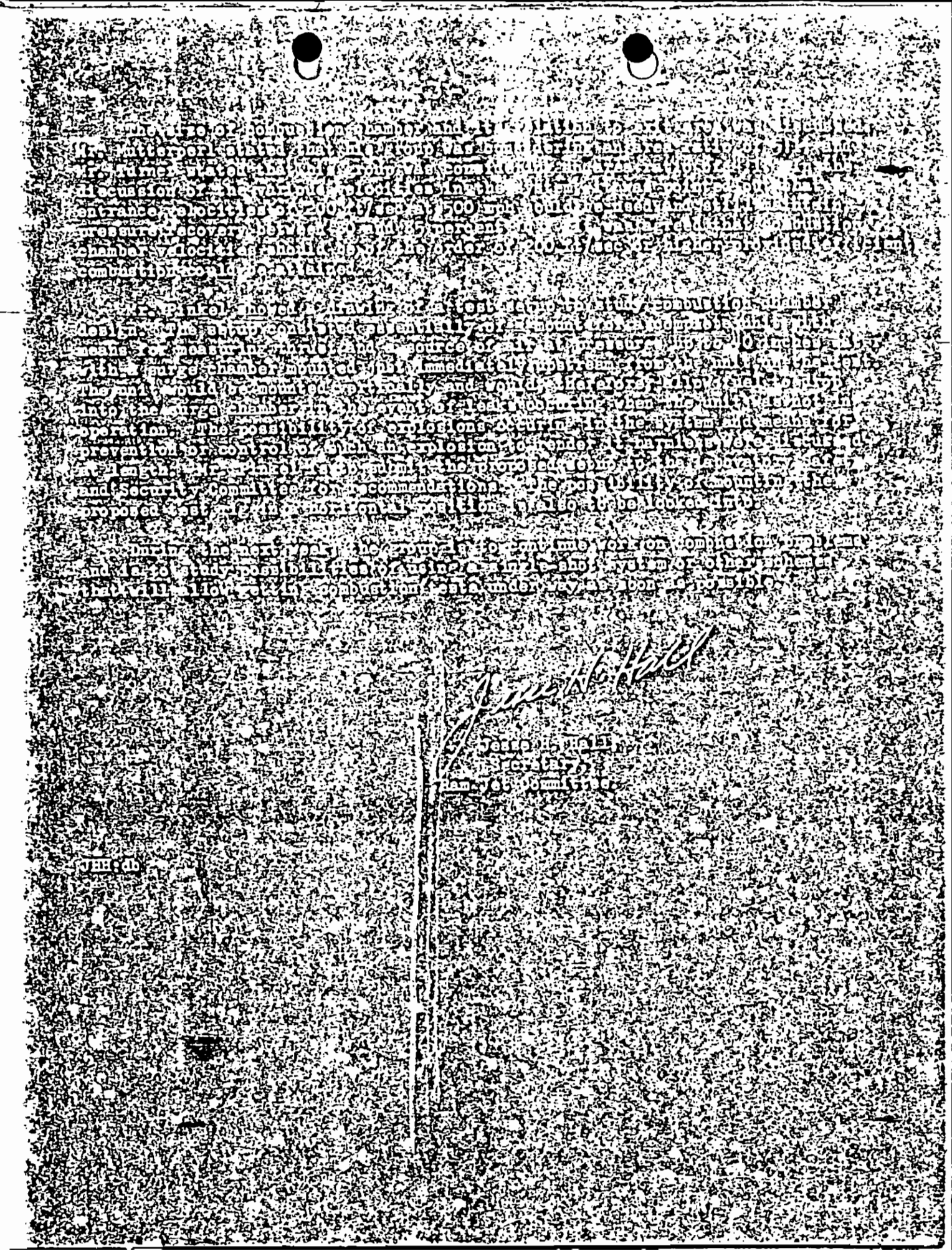


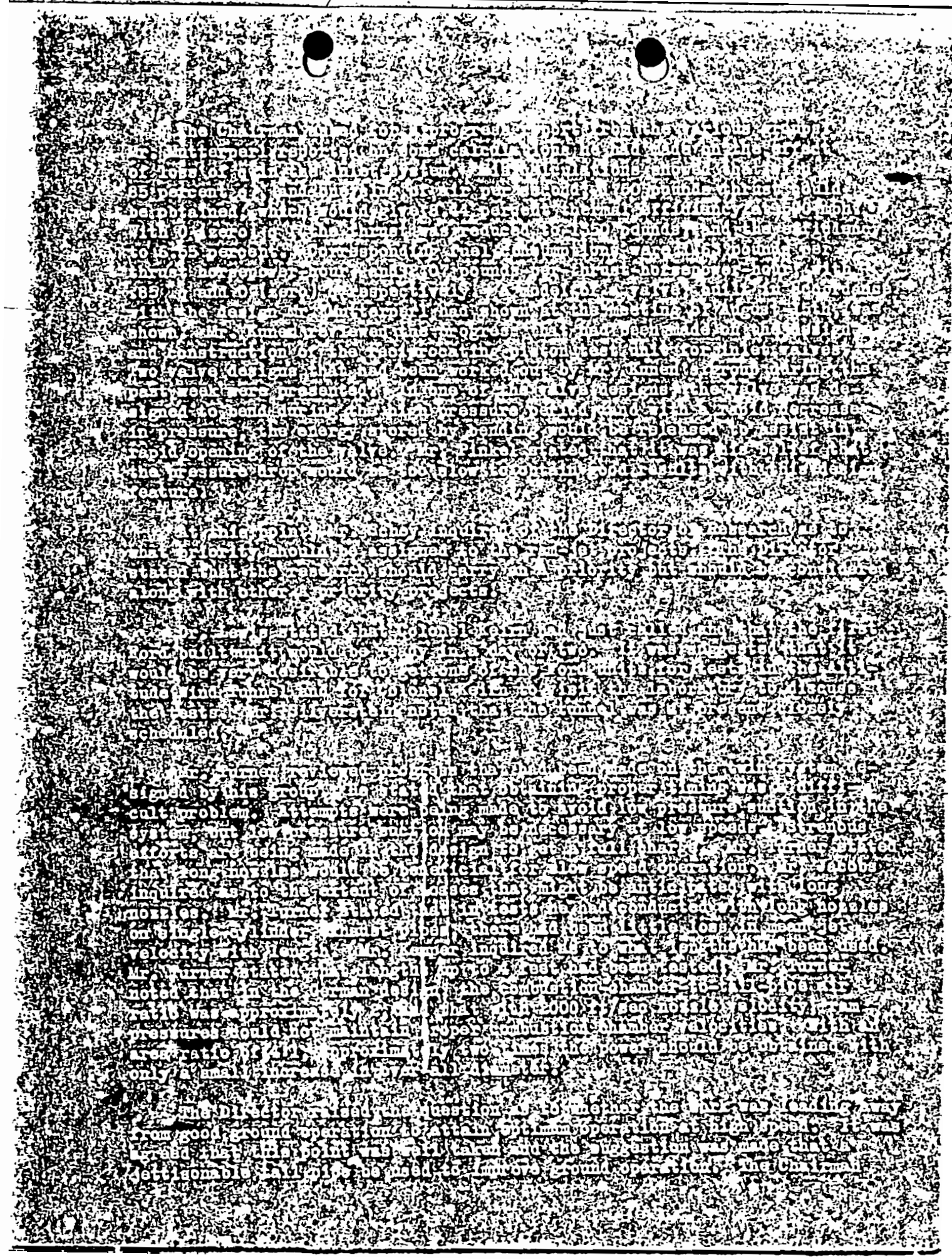
Figure 5:- Time required for purging jet motor

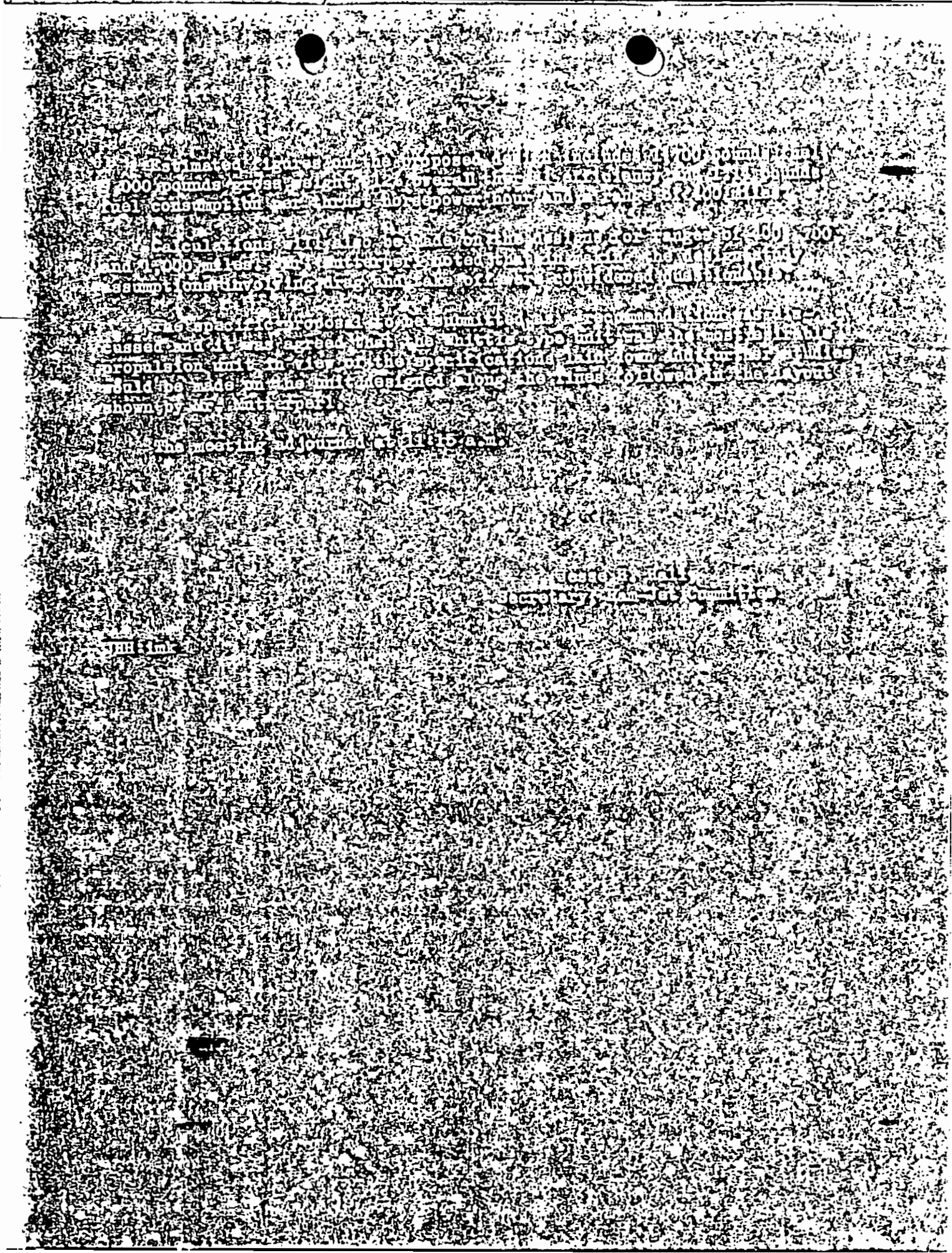

Open
Closed

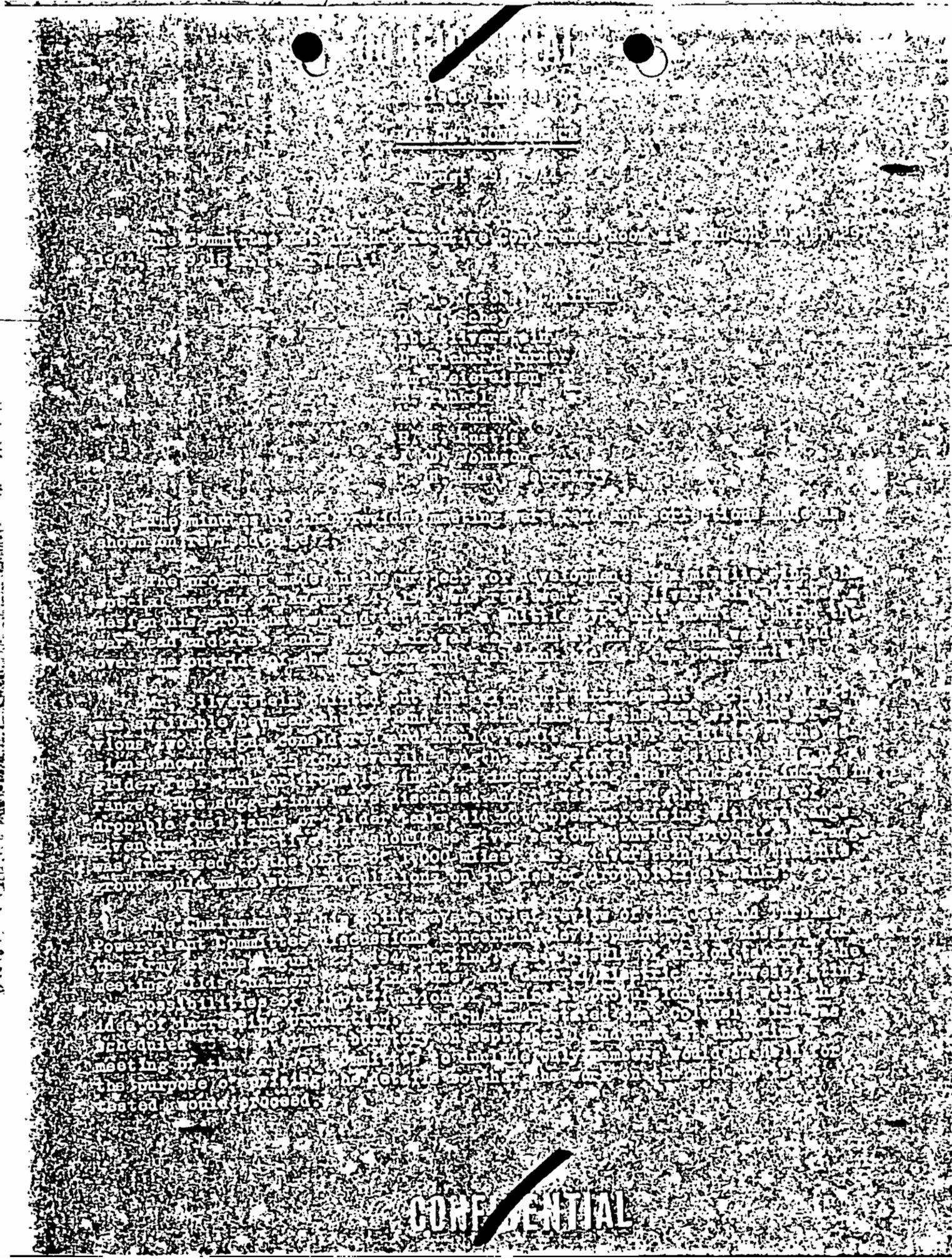


CONFIDENTIAL

CONFIDENTIAL







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[redacted]

SECRET

LAW JET CONFERENCE

January 6, 1945

The Committee met in Mr. [illegible] office in the Compressor and Burner Research Laboratory at Dayton on January 5, 1945, at 9:45 a.m.

PRESENT:

Abe Silverstein, Chairman
B. Pinkel
W. Rothrock
O. Schey
H. Bressman
A. J. Amen
W. H. Howard
J. O. Burgess
H. Hall, Secretary

The Ram Jet Committee met to review the design of the NACA aerodynamic unit. Mr. Bressman showed an assembly drawing of the NACA unit in which the section where changes in valve designs were being considered for installation. One has been evolved as a result of the reciprocating piston apparatus investigation, and the other is a hinged type valve based on the results of the intermittent flow apparatus. The valve design based on the reciprocating piston investigation is a flat valve with a relaxed back stop incorporated as a streamline strut body located between academy valves. Mr. Schey inquired if the valve had been tested. Mr. Bressman stated that the design had been tested at 35 cycles per second and found satisfactory, but that the fastening method was new.

Mr. Bressman stated that the hinged valve which is being prepared for testing on the reciprocating piston apparatus is a modification of the designs tested in the intermittent flow apparatus with good results.

Mr. Silverstein stated that the investigation on zero-pulse units would follow these lines: (1) investigation of the performance of existing units such as the type built by the Ford Motor Company, (2) the development of a better valve design on existing units, and (3) the development of a completely new design.

Mr. Pinkel reported on the first phase. He stated that preliminary calibrations of the apparatus were being made and the unit should be ready to run in a day or two. Mr. Silverstein inquired as to what investigations had been made concerning the effect of heat on the building and equipment. The possibility of damage from the operation set up by the unit and the fire hazard were discussed by the group. Mr. Pinkel said that he would look into the problem and discuss it with the Accident Investigation Committee.

Mr. Pinkel stated that it was planned to measure thrust, air flow, temperature, total heat at the inlet, static pressure in the surge tank, average total pressure ahead of field, and pressure variation by means of an electric pick-up. Motion pictures will be taken of the manometer and consideration is being given to using a Bourdon pressure gage. It

was stated that limited instrumentation was being used to reduce the required running time to a minimum.

Mr. Silverstein suggested that the fire department be notified when the tests were ready to start.

Mr. Silverstein stated that a new unit and two spare grills which were intended for tests in the Altitude Wind Tunnel (tests cancelled) will be available soon.

Mr. Bressman showed drawings of a valve intended for tests in a grill made up to fit the Ford unit. The valve is approximately four times the size of the German valve. Mr. Bressman stated that the hinged-type valve will be ready for tests in the reciprocating piston apparatus in about a week. The hinged valve will be made of .015-inch Swedish-blue steel stock.

After discussion by the group it was agreed that the hinged-valve design incorporated in a grill to fit the Ford-built unit would be the first modification to be tried. Mr. Pinkel stated that the equipment will be ready for installation of the new grill in about three weeks.

Mr. Bressman stated that the valve would be ready in about one week and that it would take approximately three additional days to draw up the design for the German unit. To expedite the modification it was agreed to procede with drawing up the best design for use in the German unit based on current knowledge and modify the design, if necessary, as a result of the tests in the reciprocating piston apparatus before construction is actually started.

Mr. Burgess showed a drawing of a small-scale unit using a smaller valve with a combustion chamber for the purpose of testing the valve under combustion conditions.

Mr. Pinkel stated that the current aero-pulse project is really a development job and on this basis the proposal of Mr. Burgess would be out of line in that it is essentially research equipment.

Mr. Pinkel stated that it was his opinion that the combustion problem involved in the design would be a difficult one. He agreed that close simulation to the actual operation as would be obtained with the unit was very desirable but that results would only be qualitative from the combustion standpoint.

In view of the fact that consideration of Mr. Burgess's proposal hinged on how deep the NACA intended to go into research on aero-pulse unit, this question was discussed by the group. Since the results of modifications made on the Ford-built unit would probably be a determining factor it was decided to table the proposal pending test results on the Ford-built unit.

Mr. Bressman reviewed the design of the NACA aero-pulse unit which is 11 feet long, has a combustion area to tailpipe area ratio of 4, and is intended to operate at 45 cycles per second. The fuel supply system designed

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RAM JET CONFERENCE

January 13, 1945.

The ram jet conference was convened at Wright Field on January 13, 1945 at 2:00 p.m. Present:

Mr. Silverstein, Chairman
O. M. Schey
B. Pinkel
J. V. Rothrock
F. H. Hall, Secretary

The minutes of the previous meeting were read and approved as read.

The Chairman stated that there was increasing interest in the ram-jet type propulsion unit with the guided missile program. It was noted by the Chairman that Colonel Ramsey had suggested the use of the term pulsoloss in lieu of pulsejet for guided missile.

A review of progress accomplished since the last meeting of the committee by each committee member was requested. Mr. Pinkel stated that the 12" guided missile intermittent flow ram jet had been made to run on a test stand at various fuel-air ratios. Data from these tests had been turned over to the computers and the results will probably be available for the end of the meeting.

Mr. Pinkel stated that examination of the motion pictures of the exhaust flames issuing from the pulsejet for 20% of the cycle and the flame appears to be sucked back at the completion of the cycle. It was noted that the flame shape differed from cycle to cycle. Mr. Rothrock stated that Colonel Ramsey had mentioned variation in the cycles observed in motion pictures taken at Wright Field. The Chairman stated that an intermittent jet of the type which the size of the 12" guided missile could possibly be developed for a thrust of 900 pounds with lower fuel consumption than with the smaller unit but resulted in a number of problems.

Mr. Pinkel stated that the Army was interested in using two of the 12" guided missiles on the P-51 to increase the speed of that airplane. It was noted that the methods being considered are the use of auxiliary rocket and the use of additional engine power. Mr. Pinkel stated that the desired combination had been made to cycle and motion pictures of the flame had been taken. The Chairman inquired as to what advantages would be obtained from controlled ignition. Mr. Pinkel stated that controlled ignition would make each cycle independent and should result in an increase of thrust. The motion pictures showed flame starting at the spark plug and moving along with the flow until the flame sphere reached the end of the tube at which time the flame front moved upstream to complete the burning of the charge. Three ignition points per cycle were indicated.

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CONFIDENTIAL

JET CONFERENCE

CONFIDENTIAL

AERL SECRET

Washington, D. C.
August 16, 1944

MAA
Cleveland

Attention: Mr. Kemper

Subject: Request of Army Air Forces to develop a guided missile

1. There is enclosed herewith copy of Army Air Forces letter dated August 4, 1944, requesting that the NACA undertake a program to develop a guided missile in cooperation with the Material Command of the Army Air Forces. It will be noted that the Army Air Forces has requested that the NACA develop the vehicle and the jet power supply part of the missile, having the remote control devices and launching mechanisms up to the Air Forces.

2. The comments and recommendations of the Laboratory are requested concerning this requested development program. The Army Air Forces is being concurrently informed that the Committee will undertake this investigation and that a conference will be arranged to discuss preliminary design studies.

3. Research Authorization No. E-110 has been assigned to this investigation and a copy will be forwarded to the Laboratory in the near future. It should be noted that the Army desires this development to take place in a minimum period of time.

By direction of the Director of Aeronautical Research:

H. J. E. Reid
Director of
Aeronautical Research.

Enc.

SECRET

SECRET

Washington, D. C.
August 16, 1944

From NACA
To: Cleveland

Attention: Mr. Kemper

Subject: Request of Army Air Forces to develop a guided missile.

1. There is enclosed herewith copy of Army Air Forces letter dated August 4, 1944, requesting that the NACA undertake a program to develop a guided missile in cooperation with the Materiel Command of the Army Air Forces. It will be noted that the Army Air Forces has requested that the NACA develop the vehicle and the jet power supply parts of the missile, leaving the remote control devices and launching mechanisms up to the Air Forces.

2. The comments and recommendations of the laboratory are requested concerning this requested development program. The Army Air Forces is being concurrently informed that the Committee will undertake this investigation and that a conference will be arranged to discuss preliminary design studies.

3. Research Authorization No. E-110 has been assigned to this investigation and a copy will be forwarded to the laboratory in the near future. It should be noted that the Army desires this development to take place in a minimum period of time.

G. W. Lewis,
Director of
Aeronautical Research.

Enc.

[illegible]

SECRET

SECRET

Address reply to ENVELOPE

Commanding General
Air Materiel Command
Engineering Division
Reference: Dept. 250
Wright-Patterson Field
Dayton, Ohio

Attention: Mr. Harry Gerry, Chief
Aeronautical Research

Dear Mr. Gerry:

Your Materiel Command is at present making a thorough study of the development of long range, ground launched, pilotless, radio controlled missiles, for immediate importance in the design of a preset guided missile of 100 to 150 miles range.

The Army Air Forces desires, however, to develop in the minimum period of time a pilotless, guided missile, ground launched, which would have a range of 1000 miles with the application of radio control for the accurate hitting of military objectives. The requirements for such a long type missile have been prescribed, and are as follows:

(a) Range — 1000 miles
(b) Weight of — 1000 lb. demolition bomb
(c) Speed — 550 mph.
(d) Control — Remote or target seeking

The general requirements dictate that the missile be of the simplest construction and minimum weight to further the desired propelling mission by means of jet propulsion. However, due to the urgency of the program, the type of motor to be used must be limited to one of the existing types for which designs would be readily available.

In order to accomplish the development of such a missile it is believed that the program should be divided into three parts, namely, (a) the vertical take-off, (b) the jet power supply, and (c) the remote control, guidance and launching mechanism.

It is requested that the NACA undertake a program in cooperation with the Materiel Command to develop parts (a) and (b). It is such proposed that the NACA shall be entrusted with the following

SECRET

SAC, Cleveland

TOP SECRET

July 27, 1951

PERSONAL ATTENTION
STRICTLY CONFIDENTIAL

Director, FBI

[redacted] [TS]

Cleveland file 65-2751

Reurlet July 12, 1951, enclosing the originals of certain correspondence concerning research on pilotless guided missiles, and reports entitled "Ram Jet Conference Minutes," all of which were obtained from the files of the National Advisory Committee for Aeronautics (NACA) in Cleveland, Ohio.

[redacted]

However, it is evident from the "Ram Jet Conference Minutes" that Willian Perlma actively associated with and participated in the experimentation performed by NACA with respect to theeguided missiles project. However, it is rather conclusive that the information concerning the robot bomb as allegedly reported by the individual referred to under the cover name "B" was not furnished by Perl inasmuch as he was referred to under an entirely different cover name during this exact period. [TS] bl

It was of interest to note that in a conference on August 24, 1944, Perl discussed with the group the layout which he had made relative to the Whittle unit to be located in the rear and to use an annular inlet and an axial jet. Further, at this same conference Abe Silverstein, NACA, furnished the opinion that the anticipated speed of 550 mph might be a little high even with the use of a Whittle unit.

It might also be mentioned that in the minutes of the conference on August 23, 1944, Dr. George [redacted] of NACA advised that he had received a call from [redacted] and had been advised that the first Ford built [redacted] would be ready in a day or two.

65-53543

cc: Detroit

New York

cc: 65-59312-48

EFE:mpm

RECORDED 158

65 AUG 7 1951

AMM • FBI
AUG 2 1951 P
MAILED 20

Classified by [redacted]
Exempt from GDS, Category 2
Declassification Indefinite
Ap/bja 2-1-78

TOP SECRET

65-59312-48

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE.

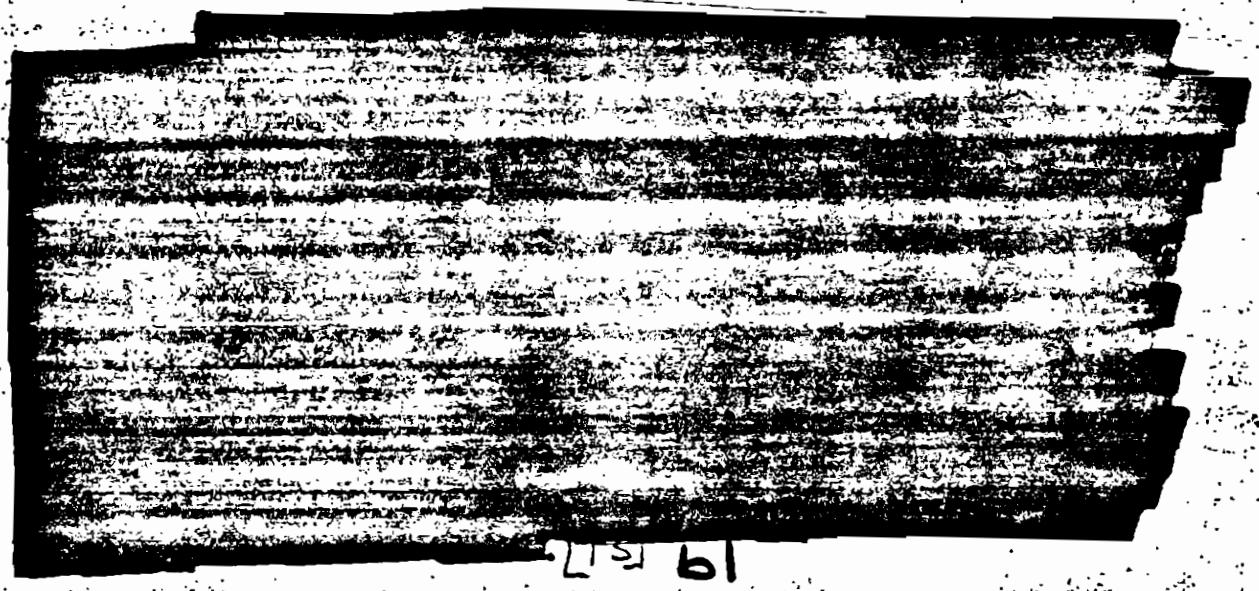
DATE 2-1-78 BY SP4 [redacted]

ADVIS. SLIP AND FILE CATEGORIAT

The aforementioned Whittle unit and Ford built unit are assumed to possibly refer to the jet system or installation which was to be used to propel this guided missile, known as the JB-2 bomb. It is therefore desired that the Cleveland division make an effort to ascertain through NACA the exact contemplated or actual dimensions (length and diameter) of the Whittle unit, Ford built unit, or any other jet unit under consideration for use on the JB-2 bomb prior to September 15, 1944.

The Detroit division is requested to make a similar check of the appropriate Ford Company file pertaining to their participation in the production of the jet system for the JB-2 bomb under subcontract with USAF. From information made available through NACA it appears that a motor or jet assembly produced by Ford Company for the JB-2 bomb had the dimensions for the pulse jet plus burners of 16 inches in length and 8 to 9 inches in diameter. It should be determined whether this was the only jet assembly or unit produced by that company for the JB-2 bomb, and the dimensional specifications with respect to any other unit made by that company for this bomb. Further, it should be ascertained whether the original specifications for this unit may have called for a shorter length and smaller diameter.

At the time of this inquiry, the Detroit division should make an effort to determine whether the Ford Company may have previously interposed any objection or hesitancy in going into production on this jet system within the designated period of 60 days subsequent to July, 1944. In the event productional figures are available, the exact number of jet units completed as of September 2, 1944, should be ascertained. Any available correspondence between the Ford Company and the Republic Aviation Company, the primary contractors for the JB-2 bomb, should be examined to determine what information relative to the number of completed units or completed bombs and the exact dimensions thereof was available to the Ford Company during the latter part of August or first part of September, 1944.



The Detroit division is further requested to thoroughly review its files and references pertaining to Andrei Schevchenko, as well as any other individual who was known to have been employed by the Ford Motor Company and working on the JB-2 bomb project during this period and who was suspected of subversive or espionage activities. It might also be possible to determine from the records of the Ford Company the identity or identities of any employees working on this bomb project whose activities may have been reported as being suspicious. It should be borne in mind in this respect that most of the members of the Rosenberg espionage network who were similarly engaged in collecting scientific aeronautical information were graduates of CCNY School of Electrical Engineering.

In the event any suspects are developed as a result of the above, an appropriate check should be made as to Ford Company leave records pertaining to these employees during the period from September 1 to September 15, 1944.

[redacted]

This matter should receive your immediate and personal attention in view of the importance of identifying this known Soviet agent.

[redacted]

[redacted]

[redacted] SECRET

7/16/51
pjr

FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE

Laboratory Work Sheet

STRICTLY CONFIDENTIAL

Re: UNSUB, wa "B"
ESPIONAGE - R

File # 65-59312-471
Lab. # D-134780 BE

William Perl aka
Espionage - R; Perjury

LAB FILE

Examination requested by: SAC, Cleveland 65-2730

Date of reference communication: 7/12/51 Date Received: 7/16/51

Examination requested: Document

Result of Examination: Examination by: [redacted] Dahlgren

hw. in pencil on 8 pages of ruled tablet paper. in Q26 no ident. with Wm. Perl K12 + K13. No known hw. of L. Richard Turner - so no comparison made to determine if he prepared hw. on 8 pages of ruled paper Q26.

Specimens submitted for examination

Q26 Original letters from Air Force dated 8/4/44, 8/16/44 concerning research on guided missiles; copies of research authorization #E-110 and a folder entitled "Ram Jet Conference Minutes."

return evidence

65-59312-
E

Known Hw. of William Bard K12, K13

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CONFIDENTIAL - INVESTIGATION SECRET

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

RESEARCH AUTHORIZATION No. E-110

Title: Preliminary Design Study in Development of Special Vehicle for Army Air Forces

By Aircraft Engine Research Laboratory

Approved ______ 194__

Chairman, Subcommittee on ______

Issued ~~Arrrvd~~ August 17, 1944 G. W. Lewis

Director of Aeronautical Research

In accordance with authority of Executive Committee March 19, 1942

Purpose of investigation (Why?)

To cooperate with the Army Air Forces in the development of a vehicle meeting special Army requirements.

Brief description of method (How?)

Preliminary design studies will be made of possible vehicles and propulsion systems to accomplish the performance requested by the Army Air Forces.

Remarks: Requested by the Army Air Forces, Materiel Command, in letter dated August [illegible], 1944, reference Department 50, Wright Field, Dayton, Ohio.

Dates of reports ______ Publications ______

Completed ______ 194__

Form No. 12 U. S. GOVERNMENT PRINTING OFFICE [illegible]

65-5931-2239

CONFIDENTIAL - INVESTIGATION SECRET

INVESTIGATION SECRET

AUTHORIZATION No. E-110

Aircraft Engine Research Laboratory

Preliminary Design Study in Development of Special Vehicle for Army Air Forces

Approved

Chairman, Subcommittee

Issued August 17, 1944

C. W. Lord

Director of Aeronautical Research

In accordance with authority of Executive Committee, March 19, 1942.

Purpose of investigation (Why?)

To cooperate with the Army Air Forces in the development of a vehicle meeting special Army requirements.

Brief description of method (How?)

Preliminary design studies will be made of possible vehicles and propulsion systems to accomplish the performance requested by the Army Air Forces.

Remarks:

Requested by the Army Air Forces, Materiel Command, in letter dated August 4, 1944, reference Department 50, Wright Field, Dayton, Ohio.

Date of report

Publication

Completed 194

Form No. 13

Confidential — Investigation secret

CONFIDENTIAL — INVESTIGATION SECRET

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

RESEARCH AUTHORIZATION

No. 110

Title: Preliminary Design Study in Development of Special Vehicle for Army Air Forces

By: Aircraft Engine Research Laboratory

Approved

Chairman, Subcommittee on

Issued August 17, 1944

Chairman, Executive Committee

Director of Aeronautical Research

In accordance with authority of Executive Committee March 19, 1942

Purpose of investigation (Why?)

To cooperate with the Army Air Forces in the development of a vehicle meeting special Army requirements.

Brief description of method (How?)

Preliminary design studies will be made of possible vehicles and propulsion systems to accomplish the performance requested by the Army Air Forces.

Remarks

Requested by the Army Air Forces, Material Command, in letter dated August 4, 1944, from Wright Field, Dayton, Ohio.

Date of report

Publications

Completed

CONFIDENTIAL — INVESTIGATION SECRET

CONFIDENTIAL INVESTIGATION REPORT

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

No. [illegible]

AIRRESEARCH AUTHORIZATION

By Aircraft Engine Research Laboratory

Title: Preliminary Design Study in Development of Special Vehicle for Army Air Forces

Approved

Issued August 27

By [illegible]
Director of Aeronautical Research

In accordance with authority of Executive Committee, March 19, 1942.

Purpose of investigation (Why?)

To cooperate with the Army Air Forces in the development of a vehicle meeting special Army requirements.

Brief description of method (How?)

Preliminary design studies will be made of possible vehicles and propulsion systems to accomplish the performance requested by the Army Air Forces.

Remarks

Requested by the Army Air Forces, Materiel Command, in letter dated August 4, 1942, reference Department 50, Wright Field, Dayton, Ohio.

Dates of report

Publications

Completed

NACA Form No. 10

Confidential

Investigation secret

NACA

AUTHORIZATION FOR AERONAUTICAL RESEARCH

Title: Preliminary Design Study of Special Vehicle for Army Air Forces

By: Aircraft Engine Research Laboratory

Approved: [illegible]

Dated: August 17, 1945

Made in accordance with authority of Executive Committee, March 23, 1942.

Purpose of investigation (Why):

To cooperate with the Army Air Forces in the development of guided missiles meeting special Army requirements.

Brief description of method (How):

Preliminary design studies will be made of possible vehicles and propulsion systems to accomplish the performance promoted by the Army Air Forces.

Remarks: Requested by the Army Air Forces, Material Command, in letter dated August 4, 1945, reference Department 60, Wright Field, Dayton, Ohio.

Publications

Dates of reports: Completed 1945

Form No. 13

Investigation assigned

AERL SECRET

Washington, D. C.
August 17, 1944

From: NACA
To: Cleveland
Subject: Development of Guided Missile for Army Air Forces
Reference: NACA letter of August 16, 1944, RELlln

1. There are forwarded herewith six copies of the research authorization to cover the preparation of design studies for the subject investigation. Research Authorization No. M-110 has been assigned for this project.

2. Research Authorizations Nos. M-111 and M-112 have been reserved to cover the construction of experimental models and the tests of such models respectively. It was considered that this work should be done under three separate research authorizations because of the broad scope of the request of the Army Air Forces.

3. It is requested that following the submission of preliminary design studies to the Army Air Forces for review, the laboratory submit drafts of research authorizations to cover the construction and testing phases of this project. It is requested that these drafts be in this office by September 5, if possible.

E. W. Lewis
Director of
Aeronautical Research.

Enc.
RELlln

SECRET

SECRET

Washington, D. C.
August 17, 1944

From: NACA
To: Cleveland

Subject: Development of guided missile for Army Air Forces

Reference: NACA letter of August 16, 1944 RM,LJR

2. There are forwarded herewith six copies of the research authorization to cover the preparation of design studies for the subject investigation. Research Authorization No. R-110 has been assigned for this project.

2. Research authorizations Nos. R-111 and R-112 have been reserved to cover the construction of experimental models and the tests of such models respectively. It was considered that this work should be done under three separate research authorizations because of the broad scope of the request of the Army Air Forces.

3. It is requested that following the submission of preliminary design studies to the Army Air Forces for review the laboratory submit drafts of research authorizations to cover the construction and testing phases of this project. If is requested that these drafts be in this office by September 5 if possible.

O. W. Lord,
Director of
Aeronautical Research.

Enc.
RRL:LJR

SECRET

RECEIPT TO BE SIGNED AND RETURNED TO THE
CORRESPONDENCE DIVISION, NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
1500 New Hampshire Avenue, N.W., Washington 25, D.C.

August 17, 1944

To: National Advisory Committee for Aeronautics

From: Cleveland

Letter dated August 17, 1944 transmitting Research Authorization No. L-110 entitled "Preliminary Design Study in Development of Special Vehicle for Army Air Forces".

It is understood that the {documents} {contai
information affecting the national {document covered by this receipt} {contai
the meaning of the Espionage Act, {defense of the United States within
is assumed for the safe handling {USC, 50:31 and 32). Full responsibili
of {this} document, in accordance {storage, and transmittal elsewhere
{these documents} {with security regulations.

Signed

Date

AERL SECRET

Washington, D. C.
August 16, 1944

From: NACA
To: Cleveland

Attention: Mr. Lowell

Subject: Request of Army Air Forces to develop a guided missile

1. There is enclosed herewith copy of Army Air Forces letter dated August 4, 1944, requesting that the NACA undertake a program to develop a guided missile in cooperation with the Materiel Command of the Army Air Forces. It will be noted that the Army Air Forces has requested that the NACA develop the vehicle and the jet power supply parts of the missile leaving the remote control devices and launching mechanisms up to the Air Forces.

2. The comments and recommendations of the laboratory are requested concerning this requested development program. The Army Air Forces is being concurrently informed that the Committee will undertake this investigation and that a conference will be arranged to discuss preliminary design studies.

3. Research Authorization No. E-110 has been assigned to this investigation and a copy will be forwarded to the laboratory in the near future. It should be noted that the Army desires this development to take place in a minimum period of time.

G. W. Lewis,
Director of
Aeronautical Research.

Enc.

RWL:lln

SECRET

SECRET

Washington, D. C.
August 16, 1944

From: NACA
To: Cleveland
Attention: Mr. Keeper

Subject: Request of Army Air Forces to develop a guided missile.

1. There is enclosed herewith copy of Army Air Forces letter dated August 7, 1944, requesting that the NACA undertake a program to develop a guided missile in cooperation with the Material Command of the Army Air Forces. It will be noted that the Army Air Forces has requested that the NACA develop the vehicle and the jet power supply parts of the missile leaving the remote control devices and launching mechanisms up to the Air Forces.

2. The comments and recommendations of the Laboratory are requested concerning this requested development program. The Army Air Forces is being concurrently informed that the Committee will undertake this investigation and that a conference will be arranged to discuss preliminary details.

3. Research [illegible] has been assigned to this investigation and a copy will be forwarded to the laboratory in the near future. It should be noted that the new designs [illegible] this development to take place in a [illegible] period of [illegible]

H. W. Lewis,
Director of
Aeronautical Research.

Enc.
[illegible]

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RAM JET CONFERENCE

January 6, 1945.

The Committee met in Mr. J. R. Bressman's office in the Compressor and Turbine Research Facilities Building at Cleveland on January 6, 1945, at 9:45 a.m. Present:

Abe Silverstein, Chairman
B. Pinkel
A. M. Rothrock
O. W. Schey
J. R. Bressman
A. E. Kumen
W. R. Howard
W. O. Burgess
J. H. Hall, Secretary

The Ram Jet Committee met to review the design of the NACA aero-pulse unit. Mr. Bressman showed an assembly drawing of the NACA unit in which the sections were flanged to facilitate changes. Two valve designs were being considered for installation; one has been evolved as a result of the reciprocating piston apparatus investigation, and the other is a hinged-type valve based on the results of the intermittent-flow apparatus. The valve design based on the reciprocating piston investigation is a flat valve with a reflexed back stop incorporated as a streamline afterbody located between adjacent valves. Mr. Schey inquired if the valve had been tested. Mr. Bressman stated that the design had been tested at 35 cycles per second and found satisfactory but that the fastening method was new.

Mr. Bressman stated that the hinged valve, which is being prepared for tests on the reciprocating piston apparatus, is a modification of the designs tested in the intermittent-flow apparatus with good results.

The chairman stated that the investigation on aero-pulse units would follow these lines: (1) investigation of the performance of existing units such as the type built by the Ford Motor Company, (2) the development of a better valve design on existing units, and (3) the development of a completely new design.

Mr. Pinkel reported on the first phase. He stated that preliminary calibrations of the apparatus were being made and the unit should be ready to run in a day or two. Mr. Silverstein inquired as to what investigations had been made concerning the effect of vibration on the building and equipment. The possibility of damage from the vibration set up by the unit and the fire hazard were discussed by the group. Mr. Pinkel said that he would look into the problem and discuss it with the Accident Investigation Committee.

Mr. Pinkel stated that it was planned to measure thrust, airflow, temperature at the inlet, fuel flow, total heat at the inlet, static pressure in the surge tank, average total pressure ahead of grid, and pressure variation by means of piezo electric pick-up. Motion pictures will be taken of the exhaust flame and consideration is being given to using a maximum pressure gage. It

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[illegible] was being used to reduce the re-

[illegible] stated that limited fan power

[illegible] required running time to a minimum.

Mr. Silverstein suggested that the fire department be notified when the

[illegible] were ready to start.

Mr. Silverstein stated that a new unit and two spare grills which are

intended for tests in the Altitude Wind Tunnel (tests cancelled) will be

available soon.

Mr. Bressman showed drawings of a valve intended for tests in a grill

made up to fit the Ford unit. The valve is approximately four times the size

of the German valve. Mr. Bressman stated that the hinged-type valve will be

ready for tests in the reciprocating piston apparatus in about a week. The

hinged valve will be made of .015 inch Swedish-blue steel stock.

After discussion by the group it was agreed that the hinged-valve design

incorporated in a grill to fit the Ford-built unit would be the first modi-

fication to be tried. Mr. Pinkel stated that the equipment will be ready for

installation of the new grill in about three weeks.

Mr. Bressman stated that the valve would be ready in about one week and

that it would take approximately three additional days to draw up the design

for the German unit. To expedite the modification it was agreed to procede

with drawing up the best design for use in the German unit based on current

knowledge and modify the design, if necessary, as a result of the tests in

the reciprocating piston apparatus before construction is actually started.

Mr. Burgess showed a drawing of a small-scale unit using a smaller valve

with a combustion chamber for the purpose of testing the valve under combus-

tion conditions.

Mr. Pinkel stated that the current aero-pulse project is really a devel-

opment job and on this basis the proposal of Mr. Burgess would be out of line

in that it is essentially research equipment.

Mr. Pinkel stated that it was his opinion that the combustion problem

involved in the design would be a difficult one. He agreed that close simu-

lation to the actual operation as would be obtained with the unit was very

desirable but that results would only be qualitative from the combustion

standpoint.

In view of the fact that consideration of Mr. Burgess's proposal hinged

on how deep the NACA intended to go into research on aero-pulse unit, this

question was discussed by the group. Since the results of modifications made

on the Ford-built unit would probably be a determining factor it was decided

to table the proposal pending test results on the Ford-built unit.

Mr. Bressman reviewed the design of the NACA aero-pulse unit which is

14 feet long, has a combustion area to tailpipe area ratio of 4, and is in-

tended to operate at 55 cycles per second. The fuel supply system designed

for the unit incorporates an interrupter mechanism for controlling fuel injection. The interrupter mechanism has a lapped fit on the rotor for sealing. Mr. Pinkel suggested that a simpler system might be arrived at.

Mr. Rothrock stated that from his experience he didn't see how the interrupter could be anything but expensive. He suggested that a number of the group discuss the problem with Cleveland Diesel and other manufacturers of Diesel fuel pumps.

Mr. Schey suggested that manufacturers of hydraulic equipment might be for some assistance. Mr. Bressman said that he would discuss the problem with local manufacturers and suggested approval of the suggested system will be made when additional information on construction of the interrupter mechanism is available.

Mr. Bressman stated that 19 fuel injection valves were incorporated in the grill for fuel injection and that the nozzles were pointed upstream. Four spark plugs would be used for ignition.

Mr. Bressman stated that in the valve design the free flow area in the grill was 42% of the total area as compared to 32% for the unit built by the Ford Motor Company.

Meeting adjourned at 12:15.

Jesse H. Hall,
Secretary, Ram Jet Committee.

JHH:lmk

RAM JET CONFERENCE

February 13, 1945.

The Committee met in the Executive Conference Room at Cleveland on February 13, 1945 at 2:00 P.M. Present:

Abe Silverstein, Chairman
O. W. Schey
B. Pinkel
A. M. Rothrock
J. H. Hall, Secretary

The minutes of the previous meeting were read and approved as read.

The Chairman stated that there was increasing interest in the ram-jet type propulsion unit with the guided missile program. It was noted by the Chairman that Colonel Vassel had suggested the use of the term "pilotless aircraft" instead of guided missile.

A review of progress accomplished since the last meeting of the committee by the committee members was requested. Mr. Pinkel stated that tests of the Ford-built intermittent-flow ram jet had been made with ram pressures from 0 to 20" of water at various fuel-air ratios. Data from these tests had been turned over to the computers and the results will probably be available before the end of the meeting.

Mr. Pinkel stated that examination of the motion pictures of the exhaust showed flames issuing from the tailpipe for 30% of the cycle and the flame appears to be sucked back at the completion of burning. It was noted that the flame shape differed from cycle to cycle. Mr. Rothrock stated that Colonel Vassel had mentioned variation in the cycles observed in motion pictures taken at Wright Field. The Chairman stated that an intermittent-flow ram jet twice the size of the Ford-built unit had been constructed at Wright Field. This unit developed a thrust of 1900 pounds with lower fuel consumption than with the smaller unit but resulted in a number of broken windows.

Mr. Pinkel stated that the Army was interested in using two of the Ford-built units on the P-51 to increase the speed of that airplane. Of the means being considered are the use of auxiliary rocket and the use of nitrous oxide for increased engine power. Mr. Pinkel stated that the "single-shot" combustion unit had been made to cycle and motion pictures of the flame had been taken. The chairman inquired as to what advantages would be obtained from controlled ignition. Mr. Pinkel stated that controlled ignition would make each cycle independent and should result in an increase of maximum pressure. The motion pictures showed flames starting at the spark and moving along with the flow until the first flame sphere reaches the nozzle at which time the flame front moved upstream to complete the burning of the charge. Three ignition points per cycle were indicated.