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By Authority of the District Engineer

PER

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*John P. ...*

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11-13-78

Classification changed to ~~SECRET~~

By authority of the U.S. Atomic Energy Commission  
Per HQ Fidler Date: October 7, 1948

17 November 1945

RETENTION CATEGORIES

- A. Permanent:
    - Deviating from established policy
    - Setting precedent for future actions
    - Significant research
    - Involves national security
    - Subject of litigation
  - B. Six Years:  All others
- 1/19/78 I.L. Cucchiara  
(Date of review) (Name)

MEMORANDUM TO Major General L. R. Groves

SUBJECT: Report of Committee on Declassification

I. Attendance

In accordance with the request set forth in your teletype of 2 November to Dr. R. C. Tolman, a meeting of the Committee on declassification was held at the California Institute of Technology, Pasadena, California, on 12 and 13 November 1945. The following were present: Dr. R. C. Tolman (Chairman), Dr. R. F. Bacher, Dr. E. O. Lawrence, Dr. J. R. Oppenheimer, Dr. F. H. Spedding, Dr. H. C. Urey and Lt. Col. J. R. Ruhoff. Dr. A. H. Compton was unable to attend the first meeting of the Committee since his plans did not permit him to come to the West Coast prior to 1 December.

On 13 November, Colonel S. L. Warren, chairman of the medical Subcommittee, attended the afternoon meeting.

II. Selection of Secretary

Lt. Col. J. R. Ruhoff was elected Secretary to the Committee.

III. Selection of Names

The name "Committee on Declassification" was chosen for the principal Committee and the name "Medical Subcommittee on Declassification" was chosen for the medical Subcommittee.

IV. Communications Presented for Consideration

- A. The Committee gave consideration to your teletype of 2 November 1945 to Dr. R. C. Tolman in which the Committee was established and its objective set forth.

CLASSIFICATION CANCELLED  
DATE 1/19/78  
For the U.S. Energy Research and Development Administration  
I. L. CUCCHIARA  
Division of Classification

This document is classified as Confidential or higher unless otherwise indicated on the authority of the...

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- B. The Committee gave consideration to specific requests for the release of information which have been received by the Manhattan District from:

Monsanto Chemical Company	letter of 14 August 1945
The University of Virginia	letter of 27 August 1945
Dow Chemical Company	letter of 19 September 1945
General Electric Company	letter of 20 September 1945
Wells Surveys, Inc.	letter of 22 September 1945
Johns Hopkins University	letter of 22 October 1945
Vanderbilt University	letter of 22 October 1945
Plax Corporation	letter of 23 October 1945

- C. The Chairman discussed with the Committee requests for advice relating to declassification matters which he had received from Professor R. S. Mulliken and Professor E. P. Wigner and stated that he would reply to their letters.
- D. The Committee gave consideration to suggestions on declassification as contained in the following memoranda:
1. Memorandum dated November 9, 1945 to Dr. Farrington Daniels from Dr. A. J. Dempster.
  2. Notes prepared by Dr. R. H. Crist and brought to the meeting by Dr. H. C. Urey.
  3. Notes brought to the meeting by Lt. Col. J. R. Ruhoff.
- E. Colonel Warren presented a report giving the recommendations of the Medical Subcommittee on Declassification as to how information pertaining to medical information might be handled.

V. General Philosophy of the Committee

In accordance with your directive the Committee has considered the effect of release of information both on the national welfare and on the national security. In the interest of national welfare it might seem that nearly all information should be released at once. In the interest of national security a superficial consideration of the problem might lead to the conclusion that very little information should be released.

*see M 6366*

It is not the conviction of the Committee that the concealment of scientific information can in any long term contribute to the national security of the United States. It is recognized that at the present time it may be inevitable that the policy of the Government will be to conceal certain information in the interest of national security. Even within this limitation there are many matters whose declassification would greatly help the progress of science without violating that policy. If we are looking to the national welfare or national security as they may be two decades from now the Committee has no doubt that the greatest strength in both fields would come from a completely free and open development of science.

Thus, the Committee is inclined to the view that there are probably good reasons for keeping close control of much scientific information if it is believed that there is a likelihood of war within the next five or ten years. It is also their view, however, that this would weaken us disastrously for the future -- perhaps twenty years hence.

The recommendations made by the Committee in what follows are based on the above views of the problem. In particular, in order to carry out these views, it is proposed in Section VII that the information under consideration be assigned to the following categories: Class I: Information recommended for immediate declassification; Class II: Information whose declassification would conduce to the national welfare and to long term national security, so that the date of declassification should depend on estimates as to the probability and imminence of war; Class III: Information not at present recommended for declassification and whose declassification should await a real reduction in the threat of atomic warfare.

#### VI. Criteria Affecting the Declassification and the Transmission of Information

- A. In considering the declassification and the transmission of information, the Committee concluded that it was appropriate to apply the following positive and negative criteria:

##### Positive Criteria

1. Advancement of general science.
2. Advancement of non-military aspects of nuclear science.
3. Advancement of military aspects of nuclear science.
4. Advancement of general technology.
5. Advancement of non-military aspects of nuclear technology.
6. Advancement of military aspects of nuclear technology.
7. Information already substantially known outside project.
8. Information readily obtainable by theory or minor experimentation.

##### Negative Criteria

1. Disclosure would jeopardize U. S. military security.
2. Disclosure would weaken U. S. position in international discussions.
3. Disclosure would jeopardize patent position.

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- B. The Committee gave consideration to the possibility that an appropriate positive criterion would be "information that cannot be kept secret". After careful consideration it was concluded that this was not a proper criterion.

The Committee gave consideration to the possibility that an appropriate negative criterion would be "disclosure would not give fair credit to different workers". It was concluded that this is not an appropriate criterion for declassification but is an important matter to consider in connection with the publication of information.

- C. The Committee concluded that the relative importance of the criteria set forth above should be regarded as subject to change with time as follows:

1. As experience is gained in declassification.
2. As the state of general knowledge in the field changes.
3. As the state of the art changes.
4. As the international situation changes and as the formulation of policy by the Government progresses.

#### VII. Categories of Information

In order to make definite recommendations as to the declassification and the transmission of information the Committee decided, as outlined in Section V, that it would be desirable to divide all of the information to be considered into the following three categories:

- Class I: Information recommended for immediate declassification.  
 Class II: Information whose declassification would conduce to the national welfare and to long term national security, so that the date of declassification should depend on estimates as to the probability and imminence of war.  
 Class III: Information not at present recommended for declassification, and whose declassification should await a real reduction in the threat of atomic warfare.

Class I includes basic scientific information which has little direct application to the problems of production or military utilization. Class II includes certain basic scientific information which would be of great value to the development of science but which has a direct bearing on production or military utilization. It also includes technological information which would be of great importance for the peacetime utilization of atomic energy but which also has importance for production or military utilization. Class III includes information which has immediate application to the problems of military utilization but for the most part has little application to the development of science or to peacetime utilization. Included in

this class are statements with regard to production capacities, amounts of active material on hand, present output of bombs, stock pile of bombs, etc. This inclusion in Class III is made in order to reserve to the President and the Congress the formulation and disclosure of national military policy.

VIII. Classified Substances

In considering the manner in which information should be assigned to the three classes set forth above, it became apparent that certain elements and compounds would require special consideration. These substances have been designated as "classified substances" and have been listed in Table I, Page 6. It will be noted that five types of information as to these substances have been listed, and recommendations made for the classification to be given to each type of information for the different substances. It is possible that further substances should be added to this list as the Committee discusses the matter with other persons in the project.

After due consideration it was agreed that the materials listed below need not be designated as classified substances:

- Boron
- Ionium
- Beryllium oxide
- Fluorine
- Hydrofluoric acid
- Fluorocarbons
- Plastics

see M 6366

TABLE I  
List of Classified Substances

Substance (1)(2)	Basic Chemistry	Metallurgy	Basic Physics	Nuclear Physics	Technology (3)
Deuterium	I	---	I	I	II
Tritium	I	---	I	I (4)	III (5)
Beryllium	I	I	I	I (6)	II
B <sup>10</sup> (7)	---	---	---	I	II
Xe <sup>135</sup> (8)	---	---	---	II	III
Polonium	I	II	I	I	III
Thorium	I	I	I	II	II
Th <sup>233</sup>	---	---	---	II	III
Protoactinium	I	II	I	II	II
Uranium	I	I	I	II	II
U <sup>230</sup>	---	---	---	II	III
U <sup>233</sup>	---	---	---	II	III
U <sup>235</sup>	---	---	---	II	III
U <sup>236</sup>	---	---	---	II	III
U <sup>238</sup>	---	---	---	II	III
Neptunium	I	I	I	I	III
Np <sup>237</sup>	---	---	---	I	III
Np <sup>239</sup>	---	---	---	I	III
Plutonium	I	II	II	II	III
Pu <sup>239</sup>	---	---	---	II	III
Pu <sup>240</sup> (8)	---	---	---	II	III
95 <sup>241</sup> (9)	II	II	II	II	II
96 <sup>241</sup> (9)	II	II	II	II	II
UF <sub>6</sub> (10)	I	---	I	II	II
WC (10)	I	I	I	II	---
Special Ordnance Materials developed at Los Alamos	III	III	III	III	III

- (1) Atomic symbols with superscripts denote a particular isotope rather than a natural substance.
- (2) All information on production capacity and stocks available is in Class III.
- (3) This includes descriptions of actual manufacturing operations and laboratory work from which (the nature of these) operations could be clearly inferred.
- (4) In the case of the D-T cross section, recommendation of Class I was not unanimous.
- (5) Small scale production methods are in Class II.
- (6) Data pertaining to applications of beryllium in a production pile are in Class II.
- (7) It should be made known that sufficient B<sup>10</sup> is available for making counters.
- (8) Any information revealing the existence of Xe<sup>135</sup> or Pu<sup>240</sup> is in Class II.
- (9) Any new work on these substances which does not reveal the existence of Pu<sup>240</sup> is to go into Class I.
- (10) Particular care is to be exercised to see that no disclosure is made of classified applications or methods of use of these substances.

## IX. Classification of Topics

As the result of careful consideration the Committee prepared the following list of topics and their recommended classification. The Committee does not regard this as a complete list of topics and in general it intends to amend, review and supplement the list in the future. Until this is done, however, immediate declassification is recommended only for topics which have been included in Class I of the list.

In using this list care must be taken to see that the recommendations to declassify agree with the treatment of classified substances in Table I.

### A. General

#### Class I

1. Physical instrumentation which may be of use in the laboratory practice of the country is to be put into Class I, but the motivation for developing the instruments and the applications for which they were used should be declassified only when the application itself is declassified. Examples:
  - (a) Counters
  - (b) Ionization chambers
  - (c) Energy-insensitive neutron detectors
  - (d) Mass spectrographs
  - (e) Electronic circuits
  - (f) Electric controls and circuits of all kinds
  - (g) Cyclotrons, Van de Graff and other ion accelerators
  - (h) Special sources of neutrons and gamma rays omitting reference to their application.
2. Methods of applied mathematics and computation if illustrated on declassified subjects.
3. Microchemical and microscopic techniques.
4. Metallurgical techniques.
5. All chemistry of non-classified substances not directly involved in production or utilization of active materials.
6. Methods of chemical analysis with illustrations on non-classified substances, provided process details and specifications cannot be inferred.

8.

7. Design and operating characteristics of small experimental piles in which enriched material or heavy water is used, provided the pile generates power at a level under 100 KW. The chemistry of decontamination is not included.
8. All nuclear properties of non-classified substances.
9. Basic studies of chemical effects of radiation.
10. General theory of centrifuge.

Class II

1. Experimental work on centrifuge method of isotope separation and detailed mechanical design.
2. Nuclear characteristics, including capture, fission, and scattering cross-sections for all energies of neutrons; number of neutrons produced per fission; spontaneous fission rates, etc.; for all isotopes of plutonium, uranium, protoactinium, and thorium.

Class III

1. Production plants, overall details, flow sheets, rates of production, operating procedures and policy.
2. Stocks and reserves of uranium and all other classified substances.
3. All specifically military matters.

B. Electromagnetic Process - (Y-12)

Class I

1. Experimental and theoretical work on general phenomena of discharges in magnetic fields.
2. Experimental and theoretical work on ion optics omitting reference to classified installations.
3. Experimental data on ionization cross section by electrons, ions, secondary emissions, etc.
4. Experimental data on high voltage breakdown in vacuum, insulator characteristics in vacuum, etc.
5. Electrical controls and circuits of all kinds omitting reference to classified installations.

Class II

1. Special precautions taken during the process with respect to critical mass.
2. Princeton work on alternate electromagnetic methods of isotope separation.

Class III.

1. Overall enrichment achieved by the process; enrichment achieved per stage (alpha or beta); isotopic constitution of uranium at any stage in the process.
2. The total production-rate of the process, of either of the two stages, or of a single tank; and the true value of the enriched and depleted ion currents in the tank.
3. The rate of feed, origin, and enrichment.
4. Overall flow-sheets, diagrams, or reports, discussing or showing in detail, a complete essential part of the process such as the complete alpha chemistry or beta chemistry.

C. Diffusion Processes. (K-25, K-27 and S-50)

Class I

1. Basic theoretical work on cascade design and kinetic chemistry, although specific applications to the project cascade and to conditioning respectively should not be declassified.
2. Techniques of particle size and surface area measurements without reference to barrier construction.
3. Fluorocarbon chemistry and manufacture.
4. Fluorine chemistry, including industrial preparation.
5. General theory of thermal diffusion in gases without application to classified installations.

Class II

1. Thermal diffusion method as applied to uranium hexafluoride.
2. Special precautions taken during the process with respect to critical mass.

Class III

1. Rate of feed, waste, production or circulation in any stage.
2. Separation factor of any stage. (psi)
3. Pressure level in any stage.
4. Capacity of largest filter, pump, blower, or motor.
5. Sizes of valves, piping, and flow meters.
6. Number of instruments, pumps, etc.
7. Total number of stages or total area of barrier in entire plant.
8. Power expended in operation of plant.
9. The design of pumps, blowers, diffusers (converters) and seals should remain classified until the feasibility can be determined of releasing useful design features without disclosing critical information concerning the size of the equipment from which the size and capacity of the plant could be inferred.
10. The details of the control of the cascade should be in Class III, although specific instruments should be declassified. (See General)
11. The barrier; methods of manufacturing it; and research and development connected with its improvement.
12. Methods of stabilizing the barrier to prevent plugging and corrosion.
13. Methods of barrier testing.

D. Plutonium Project (X-10 and W)

Class I

1. Elementary theory of neutron diffusion and general elementary pile theory omitting reference to classified installations.
2. A list should be published of the non-classified isotopes and fission products which can be produced in a pile. Information should be given as to which substances are currently available. Caution must be exercised not to reveal production capacities by disclosing critical data as to the amounts of isotopes which are available or the rate at which they can be made.
3. Details of fission product chemistry, omitting reference to separation processes.
4. Ceramics without reference to uranium or plutonium production.
5. Physical and chemical effects of high energy levels of radiation on matter, except for special construction materials and chemicals used in production processes. The values of radiation levels in production piles should not be released.

Class II

1. Extraction and decontamination chemistry, without reference to larger scale problems.
2. Alternate processes for plutonium extraction.
3. Pile theory for production units, omitting reference to actual installations.
4. Experimental and theoretical work on converter, breeder, and power piles.
5. Design and efficiency of neutron reflectors for experimental reactors.
6. Theory and design of larger experimental piles of up to 10,000 KW.

Class III

1. Canning operation.
2. Use of fission products as chemical warfare poisons.
3. Specific military and naval uses of atomic power.
4. Use of atomic energy for jet propulsion.

E. Military Utilization Project (Y)

Class I

1. Physical instrumentation as under A.
2. Methods of applied mathematics and computation if illustrated on declassified subjects. Examples:
  - (a) Shock hydrodynamics.
  - (b) Integration of partial differential equations.
  - (c) General diffusion theory.
  - (d) Theoretical methods for determining equations of state.
  - (e) Chemical kinetics including application to ordinary explosives.
  - (f) Theoretical methods for calculating opacities.
3. General theory of blast.

Class II

1. Critical masses, without reference to weapon design.
2. The theory of implosion, without reference to military application.
3. General theories of efficiencies, without reference to specific weapons.
4. Studies of detonation, shock, and hydrodynamic behavior.

Class III

1. Detailed design of weapons.
2. Fuses, firing systems, detonators.
3. The principle, method of construction, and operation of modulated initiators.

13.

4. Rate of production, reserves, and storage of bombs.
5. Mechanism of delivery of bombs from plane.
6. Ballistics.
7. Destructive effects of actual bombs.
8. Use of weapon under water.
9. Techniques of implosion, except for specific instruments which do not divulge the method of application.
10. Explosive lenses.
11. Efficiencies.
12. The "super" as a weapon.

F. Medical Information

Class I

1. All reports on medical research and all health studies omitting such items as might disclose information beyond that included in Class I, Section IX, A to E inclusive.
2. Medical information as to the effects of the bomb on Hiroshima and Nagasaki. This is recommended in order that exaggerated statements as to lasting radiation effects may be discredited on the basis of the true facts.

X. Mechanism for Declassification

The Committee gave consideration, not only to the rules which should be followed in declassification, but also to the establishment of an appropriate mechanism for carrying out the process of declassification.

A. Declassification Guide

It is recommended that Table I on classified substances and Section IX on the classification of topics serve as a Declassification Guide for use in the process of declassification. It is recommended, however, that the whole of the Declassification Guide should not be generally distributed since it gives an overall picture of the whole project and makes mention in certain instances of extremely

secret matters. The portions of the Declassification Guide needed for the work of anyone concerned with declassification should be made available.

It was the opinion of the Committee that this guide should be amended, reviewed and supplemented as proves necessary; at the same time it was hoped that in its present form it would be complete enough to be of immediate use. It should again be emphasized that regardless of the recommendations for declassification of topics contained in Section IX, the principles set forth in Table I must be followed.

B. Declassification Organization

The Committee recommends that the process of declassification should be carried out by an organization consisting of (1) the Directors of laboratories or other organizations in which documents proposed for declassification originate, (2) the Responsible Reviewers who will be appointed to consider documents arising in different fields, and (3) the District Declassification and Transmission Office which will be set up by the District Engineer.

It shall be the duty of the Director of the laboratory or other unit (1) to assure himself that the document in question contains no material that is not declassifiable in accordance with the Declassification Guide, and (2) to assure himself that the document contains no statement which might adversely affect the patent position of the government, obtaining a statement to this effect from a representative of the Office of the Patent Advisor (Captain Lavender) in case of uncertainty. Having certified that the document does fulfill these requirements he should forward it for further consideration to the Responsible Reviewer for the field in question, or in case of doubt as to the proper channel, to the District Declassification and Transmission Office which will forward it to the appropriate Responsible Reviewer.

Responsible Reviewers, designated for the different major fields of work, shall be appointed by the District Engineer with the approval of the Commanding General, on the basis of suggestions from members of the Committee on Declassification, from the Directors of laboratories, or from others concerned. It is understood that the concurrence of the Director of any major laboratory will be obtained in the appointment of a Responsible Reviewer to be mainly concerned with the work of that laboratory. It shall be the duty of the Responsible Reviewer (1) to assure himself and certify on the basis of detailed examination that the document proposed for declassification conforms to the Declassification Guide, (2) to assure himself and certify that it does not adversely affect the government's patent position, obtaining a statement to this effect from a representative of the Office of the Patent Advisor in cases of uncertainty, and

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(3) insofar as possible to give preliminary assistance to the Directors of laboratories who are concerned with the problem of declassification. In carrying out his duties the Responsible Reviewer may find it necessary to make use of assistants or of an advisory committee. This, however, does not relieve him from his responsibility in making the required certifications. It should be emphasized that the Responsible Reviewer must assume full responsibility for his recommendation on the basis of the detailed examination. Moreover, it is the intention of the Committee that the principal responsibility for declassification recommendations should rest with the Responsible Reviewer. In the field of medical matters it is contemplated that the Medical Subcommittee on Declassification will perform the functions of Responsible Reviewers.

A District Declassification and Transmission Office shall be established by the District Engineer. It shall be the duty of this office (1) to declassify documents on the basis of the certifications from the Directors of laboratories and from the Responsible Reviewers, (2) to ascertain by suitable checks whether the mechanism of declassification is proceeding in accordance with the rules laid down in the Declassification Guide, (3) to make sure that the mechanism of declassification functions promptly and efficiently, and (4) on the basis of an overall view to make sure that appropriate material in all fields is declassified as expeditiously and completely as possible in order to secure the maximum benefits to be derived from its wider use.

Although it lies outside the specific directive of the Committee, it is recommended that the three agencies of the Declassification Organization -- the Laboratory Directors, Responsible Reviewers, and District Declassification and Transmission Office -- give attention to the problem of securing proper recognition, by means of authorship or otherwise, for the different persons who have contributed to a given field of work.

In connection with the release of declassified information it is recommended that all possible use should be made of the normal channels of publication of scientific and technical articles. This has the advantage that papers on purely scientific matters can be made available without necessarily revealing the specific purposes of the work or its relation to any particular part of the project. Approval should also be given to the preparation of encyclopedic handbooks covering work on the various major phases of the project. Steps must then be taken, however, to insure proper coordination of the material included in such handbooks with that which may be published in separate articles. In addition, attention is called to the necessity of preparing chapters of a proposed handbook, for which outside publication is contemplated, in such a form as to agree with the Declassification Guide.

XI. Mechanism for Transmission of Classified Information

The problem of transmission of classified information was considered in two parts.

A. Transmission of Classified Information between Units of the Manhattan District

1. The majority of the Committee agreed that the Directors of certain major laboratories should be authorized to make known to each other the availability of information in Section IX falling into either Class I or Class II and to request and transmit such information between themselves. They should be authorized to take such action without further approval provided the District Declassification and Transmission Office is informed simultaneously by duplicate copies of correspondence. It shall be the responsibility of the Directors of both laboratories concerned to make sure that any information requested or transmitted does in fact fall into either Class I or Class II as set forth in Section IX. It shall be the responsibility of the laboratory Director receiving the information to make sure that appropriate use is made of it within his organization. It is recommended that the laboratories listed below should at present be allowed to participate in this direct interchange of information; it is contemplated that changes in the list will be necessary from time to time.

- (a) Ames Laboratory, Iowa State College
- (b) Argonne Laboratory
- (c) Clinton Laboratories
- (d) Los Alamos Laboratory
- (e) Metallurgical Laboratory, University of Chicago
- (f) S.A.M. Laboratories
- (g) Radiation Laboratory, University of California

2. Transmission of classified information between units of the Manhattan District, unless both are listed above, should be handled in accordance with present District policy.

B. Transmission of Classified Information for Use Outside the Manhattan District

In the case of information for use outside the District the Committee recommends:

1. The transmission of classified information outside the project must be in the interest of the national welfare.
2. The recipient must be cleared, responsible, and bound to secrecy.
3. Inquiries directed to Directors of laboratories or other organizations should be forwarded for action to the District Engineer, together with the recommendation of the Director receiving the inquiry.
4. Inquiries originally addressed to the District Engineer may be acted upon by him without further consultation or may be referred to an appropriate laboratory Director for recommendation prior to action.

XII. Conclusion

The foregoing report presents the recommendations which the Committee has been able to formulate at the present time. It is hoped that they may serve as a basis for action which will lead to the release of appropriate information at an early date.

It is anticipated that it will be possible for the Committee in the near future to consult with the large industrial companies which have been associated with the work of the District. It is probable that further recommendations will result from such consultations.

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R. F. Bacher

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A. H. Compton

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E. O. Lawrence

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J. R. Oppenheimer

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F. H. Spedding

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H. C. Urey

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Richard C. Tolman  
Chairman of the Committee  
on Declassification

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J. R. Ruhoff  
Secretary to the Committee

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