Basic Principles Covering the Assignment of Research and Development Responsibilities Among the Technical Services of the Department of the Army.

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Lt. Col., QMC

24 May 1949

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COMMAND AND GENERAL STAFF COLLEGE 4021
Department of Logistics
Fort Leavenworth, Kansas

24 May 1949

STUDENT RESEARCH DIRECTIVE FOR SUBJECT NUMBER 8-10

STUDENT Johnson, Amos G. (Name) Lt. Col., Q. M. C. (Rank) 0-21363 (ASN)

FACULTY ADVISOR Lt. Col. Colson (Name) (Room No.) 7282 (Tele. No.)

SUBJECT Basic Principles Governing Assignment of Research and Development Responsibilities Among the Technical Services.

PURPOSE: To present basic principles which should govern the assignment of research and development responsibilities among the technical services.

SCOPE: (Brief outline of subject coverage)

1. Briefly outline the national organization for research and development and the basic principles governing assignment of research and development responsibilities among the armed services (Army, Navy, Air).

2. Examine the evolution of the principles and policies now in effect which determine the assignment of research and development responsibilties among the technical services.

3. Develop the basic principles governing the assignment of research and development responsibilities to the technical services, and the necessary control, supervision, and coordination established within and from outside the Department of the Army.

4. Analyze these basic principles and the resultant assignments of responsibilities to the technical services to determine if these principles will produce optimim results from the technical services in their contributions to the national research program.

5. Make specific recommendations concerning the principles which should govern the assignment of research and development responsibilities to the technical services and the establishment of necessary controls, supervision, and coordination within and from outside the D/A in order to obtain optimum results in the National Research and Development Program.

NOTE TO STUDENTS:

1. The scope suggested above is intended as a guide only and is not to be construed as a limitation on the students perusal of the subject. The student is encouraged to modify the above scope as he may find necessary to outline and define the specific problem he visualizes and proposes to develop in his research study.

(over)

2. The references below are furnished to give the student enough material with which to begin his research. It is anticipated that the student will make use of other available sources in order to give adequate scope to his subject, and to include latest developments pertaining to the subject.

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COORDINATION: (Confer with the authors of these subjects for pertinent information and coordination)

REMARKS:

COMMAND AND GENERAL STAFF COLLEGE

FORT LEAVENWORTH, KANSAS

Logistics Specialized Course
Regular Class 1948-1949

Basic Principles Covering the Assignment of Research and Development Responsibilities Among the Technical Services of the Department of Army.

Amos G. Johnson
Lt. Col., QMC

Date submitted: 24 May 1949

COMMAND AND GENERAL STAFF COLLEGE
Department of Logistics
Fort Leavenworth, Kansas

File No. 8-10 24 May 1949

SUBJECT: Basic Principles Covering the Assignment of Research and Development Responsibilities Among the Technical Services.

TO: Director of Logistics, C&GSC.

1. PROBLEM. -- To determine the basic principles covering the assignment of research and development responsibilities among the Department of Army Technical Services.

2. ASSUMPTIONS. -- a. That research and development in the Army will continue and will receive priority attention.

b. That the national research and development organization and programs will continue essentially as presently constituted.

3. FACTS BEARING ON THE PROBLEM. -- a. The current organization of the National Military Establishment facilitates the delineation of research and development responsibilities among the technical services. Annex 3.

b. Priorities; funds; a balance between basic research, applied research, and development; personnel; facilities; and exchange of data control or limit research and development projects. Annex 4.

4. DISCUSSION. -- a. The Research and Development Board of the National Military Establishment through guidance and coordination of Army, Navy, and Air Force research and development programs assists the Army in assignment of projects. Essential projects are related to strategic effort and duplication, if possible, is eliminated.

b. The enormous amount of research and development necessary, its complexity and diversity requires direct relationship to assigned responsibilities, functions, and activities of the service. Because of fund limitations, personnel and facilities shortages, and the fact that data of interest to one often arises from another's project, this desireable direct relationship generates a major conflict, resolution of which must be made in each individual case.

c. Priorities and a balanced program of basic research, applied

research, and development are major considerations. The fiscal year method of funding hampers long range projects and activities.

5. CONCLUSIONS. -- a. That the Research and Development Board in its guidance, coordination, and supervision role be continued.

b. That a balance between basic research, applied research, and development be maintained at all times.

c. That research and development projects be assigned to the technical services in consonance with their other responsibilities.

d. That maximum use where possible be made of civilian and other government facilities and personnel.

e. That the present technical committee and priority systems be maintained.

f. That some duplicate or similar projects are necessary.

g. That more full and complete exchange of data is required.

h. That the present funding policy is not fully satisfactory.

6. ACTION RECOMMENDED. -- a. That the present Army research and development program be continued except as noted below.

b. That the above conclusions "a" through "f" be adopted as basic principles by the Director of Logistics, GSUSA, in assigning subject responsibilities.

c. That the funding method be extended for a period longer than a fiscal year.

d. That the proposed National Science Foundation be supported.

e. That this study be approved and forwarded to the Director of Logistics, GSUSA, for consideration. (Annexes 1 and 2).

Amos G. Johnson

AMOS G. JOHNSON
Lt. Col., QMC

ANNEXES:

1. Draft Memorandum to Commandant, C&GSC.
2. Draft Letter of Transmittal to Director of Logistics, GSUSA.
3. National Military Establishment Research and Development.
4. Research and Development Limitations.
5. Bibliography.

Concurrence. -- Omitted.
Nonconcurrence. -- Omitted.

Consideration of noncurrence. -- Omitted.
Annexes added. -- Omitted.

APPROVED: ____ May 1949

F.A. HENNING,
Colonel, FA
Director

COMMAND AND STAFF COLLEGE
AND FORT LEAVENWORTH

BASIC PRINCIPLES COVERING THE ASSIGNMENT OF RESEARCH AND
SUBJECT: DEVELOPMENT RESPONSIBILITIES AMONG THE D/A TECHNICAL SERVICES.

(IDENTIFY THIS MEMORANDUM SLIP WITH PAPERS TO WHICH ATTACHED.)

TO	SUBJECT MATTER	FROM DATE AND NAME
Commandant C & GSC	1. I concur in the recommendations of the attached research study. 2. Request that this study be transmitted to the Director of Logistics, GSUSA, by means of a letter, (Annex 2) which has been prepared for your signature. Annex 1.	F.A. HENNING Colonel, FA Dept of Logistics

ANNEX 1

L-1570—C&SC—22 Jan 47—6M

(USE REVERSE SIDE IF NECESSARY.)

COMMAND AND GENERAL STAFF COLLEGE

FORT LEAVENWORTH, KANSAS

SUBJECT: Basic Principles Covering the Assignment of Research and Development Responsibilities Among the Technical Services of the Department of Army.

TO: The Director,
Logistics Division, GSUSA
The Pentagon,
Washington 25, D.C.

1. The attached staff study, above subject, is transmitted to you for consideration and appropriate action.

2. The research study was prepared by a student in this College and concurred in by the Director, Department of Logistics. The recommendations made for research and development assignment principles appear to have considerable merit.

M.S. EDDY
Lt General, USA
Commandant

Annex 2.

ANNEX 3

National Military Establishment Research and Development.

1. On 6 August 1945 the importance of scientific research and development in military effort was impressed on the public to a shocking degree for it was then the atomic bomb was dropped on Hiroshima, Japan. This mighty result of tremendous effort during war time combined the discoveries of pure or basic research, trial and error application of theories to matter or applied research and a herculean task of development. This result came as the climax to military and civilian authorities working in harmony toward a common goal - victory.

2. After victory what? The organization for national defense has undergone many changes to date and if progress is to be maintained more changes will be forthcoming in the future. Among the changes we have experienced is the creation of the Research and Development Board at the National Military Establishment Level. This Board has the primary purpose of advising the Secretary of Defense as to the status of scientific research relative to the national security. Included in the common functions of the armed forces is the responsibility to conduct research, to develop tactics, technique, and organization, and to develop and procure weapons, equipment, and supplies essential to the fullfillment of assigned functions, each service coordinating with the others in all matters of joint concern. Thus peacetime research and development is not only acknowledged but is encouraged.

3. The organization of the Research and Development Board indicates the continued military and civilian harmony so effective during wartime. The Board Chairman as well as the committee chairmen, consulting specialists, and the Executive Secretary are all civilians. Many of these civilians are on a temporary assignment basis and are well known in their fields or specialities. This method of organization lends itself to obtaining the very best

available knowledge, a non-service viewpoint, and prevents empire building. The Army, Navy, and Air Force are equally represented and the voting arrangement is such that no two Departments can "gang-up" on the other.

The mission of the Board is accomplished through the use of committees and panels. These are of two types namely technical field and end products with respective examples being electronics and guided missiles. Guidance from the Joint Chiefs of Staff directs the efforts of the various committees and panels thereby relating strategic concept to the research and development effort. The problems are big and complex. Steady pressure and gradual influence by the Board is resulting in accomplishment. The weaknesses presently encountered are three-fold: first, to find out what is going on in all the agencies of the National Military Establishment regarding research and development, second, to determine what should go on and what shift in emphasis is necessary, and third, to see to the execution of recommendations made. Gradually these weaknesses are being overcome as the Board matures and organizing difficulties are straightened out. Obstacles being worked out include the separate systems of bookkeeping in the Army, Navy, and Air Force and the area of activity for each. In this matter of activity, latitude in execution of research and development projects is a prerequisite.

5. The present mechanism of the Board is proving quite good and does facilitate the integration and coordination of research and development in the National Military Establishment. Much information has been made available and unwarranted duplication is being eliminated.

6. The Special Task Force of the Hoover Commission on Government Reorganization proposes that the Research and Development Board should review the research and development budget estimates of the three services. This Task Force also found that the Board had been handicapped by various causes - none set forth - and recommended "(4) Relating scientific research and development more closely to

strategic planning", stating that sound weapons systems evaluation has so far not been possible to attain because of differences between the Joint Chiefs of Staff and the Research and Development Board.

7. In the Army the Director of Logistics has the responsibility for research and development matters. The Navy has an Office of Naval Research and the Air Force has its research and development supervised by the Deputy Chief of Staff, Material. These agencies provide in each service a single focal point for all research and development matters. Policy, guidance, correlation of programs, and supervision of military research and development in its broadest phases for these agencies stems from the Board which has just been discussed. This policy, correlation, and supervision assists the services in the discharge of research and development responsibilities.

8. Implementation of the Army research and development program is a function of the Administrative and Technical Services. At present the major fields of interest of each service in this program are set forth in the pamphlet "Research and Development, Logistics Division, GSUSA". A study of these fields reveals a definite connection with their other responsibilities; for example, in procurement, storage, and issue of material items for which they have responsibility. This relationship should not be changed. Further, it is possible for two or more services to operate in the same general field without overlapping when each applies its efforts in unrelated areas or works in a different direction in the same general field. A good example is that the Medical Department and the Quartermaster Corps have an interest in the major field of food. The technical committee system established by Special Regulations 705-5-1, 17 March 1949, appears good in all respects for coordination and expediting action and no change is recommended.

9. The Department of Army's research and development effort is controlled and directed by (a) the Master Plan prepared by the Research and Development Board, (b) an Over-all Plan prepared by the Logistics Division, GSUSA, and (c) the detailed plans prepared by the Technical

Services. These latter plans implement the first two and are set up on a yearly basis because the funding method is that of a fiscal year. Long range planning is done although it is very tentative. The other plans are more long range and very general by comparison; however, they do contain short range data.

ANNEX 4

Research and Development Limitations

1. It is not unreasonable to say that a major factor in our national survival is the extension of scientific knowledge. The war years, it has been recognized, seriously depleted our store of basic scientific knowledge and interrupted the efforts of civilian scientists in Europe from whom the greater part of basic scientific knowledge was obtained. Through science, time may be bought and this is a major consideration because with the advent of war, time has always been very short. By research and development effort in peacetime, the tools and techniques for a possible future war are fashioned. A sidelight to military research and development that is or should be of interest to the public is the contribution to better health and living standards growing from discoveries incident to this military effort.

2. The first two recommendations on this subject made by the President's Scientific Research Board stress that as a nation research and development must be increased as rapidly as expansion of trained manpower and facilities permit and that heavier emphasis must be placed upon basic research. This applies to the Army as well as to the nation.

3. Nationally, the limitation of trained manpower is a major problem. This is not entirely true in the Army; however, it exerts a direct influence. Money is the major limiting factor in the Army as the national economy can afford only so much for military effort and research and development has averaged in the past few years about 5% of the Army budget. The relationship of trained scientists and money is pertinent in that the salary received by scientists from governmental agencies can in no way compare with that of industry. Thus by limiting funds the Army is limited in obtaining qualified scientific personnel and in providing facilities. The best method of overcoming these two major limitations is to utilize the personnel and facilities of other governmental, industrial, and educational

activities. This is satifactory in research and development where classified activity is not inherent; however, in many military problems classification is an intregal part of the effort in which case the military must compete for personnel and facilities.

4. A strong research and development policy may forestall or prevent a future war by long range planning and projects. This long range effort is susceptible to dramatic change as a result of fund changes. Stability of funds over a long term period is necessary for proper and efficient planning and experimentation particularly research. The present fiscal year funding method is inadequate when considered by these standards. The Navy has recognized this and Congressional approval of a five year funding method for the Office of Naval Reserach has been granted. Such an arrangement is considered very desireable for the Army. Basic research knows few short cuts; time is its indispensable factor.

5. Effective control of research and development conducted in civilian facilities is required so a situation such as the German Military Agencies found themselves in during World War LL will not occur to us. As related by Colonel L.E. Simon in his report on German Scientific Establishments, industry and the scientists were not adverse to experimentation for their own benefit at the expense of the German Government. The occasion for duplication by military agencies as was found in Germany has been eliminated in our military organization by the establishment of the Research and Development Board. On the high level this is of prime importance; however, it does not prevent offenses at the operating level. Therefore, supervision and policing by the contracting agencies almost to the point of interference is essential.

6. The Army is interested in end products with which to prevent or conduct a war. Such products are weapons for our manpower which are ahead of any potential aggressor and also countermeasures for the new weapons any aggressor may develop. Basic research does not provide end products. This difference means there is a definite requirement for a balanced program of basic research, applied research, and

development. They are extremely interrelated and in some cases no fine line is discernible where one ceases and the other begins. No definitely stated policy of what this balance should be is believed possible. Reliance on the supervisors and executors of our research and development program must be made that such a balance is carried forward. This principle must never be neglected.

7. The priority system established by Special Regulations 705-20-1, 17 March 1949, is believed very satisfactory. Implementation of its content and intent in conjunction with the guidance of the Research and Development Board should maintain our research and development effort in the right direction.

8. With the increased scope and importance of military research and development activities, the need for improved dissemination of scientific knowledge is a vital one. The present integrated system of reports provides data essential for the analysis, evaluation, and coordination of the research and development programs. The data contained in these reports are primarily technical. The interchange of data through the technical committees is of considerable importance and is highly desireable. Considering the National Military Establishment itself, exchange of data is belived satisfactory; however, a broader view must be taken in this matter. The establishment of the proposed National Science Foundation would seem to answer this need. This proposed Foundation would have as its mission the direct responsibility for coordinating and promoting scientific research in the United States. Such an addition to our Government structure would provide vastly greater coverage of the scientific field as to accomplished or in progress work. This in itself would assist in avoiding duplication which results in wasted time, money, and effort which could be devoted to more needed and profitable work.

9. This problem has many facets of consideration. This study has extracted the pertinent essentials rather than all considerations. Based on pertinent essentials and the present research and development

program in the Army, clear cut all inclusive basic principles are evolved. These have been stated in items "a" through "f" of paragraph 5 on page 2 of the study.

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