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REPORTS CONTROL
SYMBOL CSCRD-16

ARMY MEDICAL SERVICE

CONSOLIDATED R & D ANNUAL PROJECT REPORT
(EXCLUDING G M)

1 JANUARY - 31 DECEMBER 1958

US ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND

US ARMY

ARMY MEDICAL SERVICE

CONSOLIDATED R & D ANNUAL PROJECT REPORT

(Excluding GM)

(Reports Control Symbol CSCRD-16)

1 January - 31 December 1958

US Army Medical Research and Development Command
US Army

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1	Veterans Administration
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1	Office, Intelligence Research and Analysis

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSGRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Development of Medical, Dental and Veterinary Equipment and Supplies (U)	U	6-59-04-049
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Military Medicine	Equipment	PO-16

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
The Surgeons General US Army, Navy and Air Force	Medical Equipment Development Laboratory Fort Totten, New York	
9. DIRECTING AGENCY: ASMMCC		
10. REQUESTING AGENCY: ASMMCC		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
USN - BuMed (P) Air Force (P)		RES. Cont.	
		DEV. Cont.	
		TEST Cont.	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 12 July 1954	59	100M
		60	100M
	15. PRIORITY: 2 / 16. MAJOR CATEGORY: 6.28	T	100M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Advances made in the field of medicine and changes in concepts of modern warfare require continuing actions related to the improvement of existing medical equipment and the development of new equipment. It is the purpose of this project to provide for such actions. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: It is the primary objective of this project to improve the battlefield performance of field medical units by effecting improvements to existing medical equipment and by developing new medical equipment which possess characteristics peculiar to military usage. The development effort is directed toward, but not limited to, ease of maintenance; simplicity of operation; ruggedness; conservation of space and weight; minimum need for logistical support; efficiency and reliability.

b. Approach: Based on requirements generated within the Army Medical Service for improvements to or development of items, recommended subtasks are

88 OASD (R & D)	SN.	CN.	C.	X.	I.	C.

DD FORM 1 APR 55 613 REPLACES DD FORM 613, 1 JAN 52.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Development of Medical, Dental and Veterinary Equipment and Supplies (U)	U	6-59-04-049
	4.	5. REPORT DATE 31 Dec. 1958

submitted to the Armed Services Medical Materiel Coordination Committee for referral to the Medical Equipment Development Laboratory (MEDL). At MEDL the appropriate research and development phases are accomplished which permit user tests and subsequent type classification actions. Normally, the initial prototype of an item is fabricated by MEDL, with additional prototypes being furnished through contractual arrangements with industry.

c. Tasks: Assigned as required.

d. Other Information: The Medical Equipment Development Laboratory has a tri-service mission and is funded and military staffed equally by the Army, Navy and Air Force. (1) This project comes under the category of significant scientific research. Number of research tasks - Assigned as required. Number of research contracts - 0.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Items -

Agency	Project Number	Title
Navy	NM 21 00 00	Evaluation of Clothing, Equipment and Devices for Submarine and Shipboard Use
Navy	NM 91 00 00	Development and Evaluation of Field Equipment
Air Force	6325	Integration of Personal Equipment

(6) Specific Review Points - Not applicable

e. Background History and Progress: (1) Background History: Early in 1945 the Secretaries of War and Navy set up the joint Army-Navy Medical Procurement Office. Under supervision of this office the Laboratory was established in 1946. The Air Force joined the Army-Navy operation in 1949 and the Procurement Office was renamed the Armed Services Medical Procurement Agency (ASMPA). The Medical Equipment Development Laboratory was designated a branch of that Agency. Under

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
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the Agency, a joint Armed Services Medical Materiel Standardization Committee directed the Laboratory.

On 1 January 1957, the Development Laboratory was redesignated as a Class II activity of The Surgeon General, Department of the Army, and is presently under the command of the Commanding General, U. S. Army Medical Research and Development Command. At the same time the Standardization Committee was redesignated the Armed Services Medical Materiel Coordination Committee. The Medical Equipment Development Laboratory has an Army commanding officer but has continued to be jointly staffed and to operate for all three services. It receives approved joint projects from the Armed Services Medical Materiel Coordination Committee and makes its recommendations to the Committee.

The program concentrates on military items such as technical equipment for field use--an area in which industry has little interest. Standardization of design and operation, reduction of the size and weight of equipment, increased durability, and adaptation of equipment to various voltages found outside the United States and special equipment which will operate with unique sources of power are among the objectives and contributions of development at the Laboratory.

(2) Progress: A jet injection apparatus was designed and fabricated which incorporated characteristics required for military usage. The item provides a method of administering vaccines by piercing the skin with extremely fine high pressure jets without evoking the sensation of pain or causing only slight pain. It eliminates the needle and syringe technique and sterilization of the nozzle between injections is not necessary. The elimination of the sterilization required in connection with the syringe-needle technique enables immunization programs to be conducted with less medical personnel. Engineer tests of the military model jet injection apparatus have been completed and user tests are currently being conducted.

f. Future Plans: Studies are continuing. Modification of existing medical, dental and veterinary items and development of new is required to meet the needs peculiar to the advancement of military medicine in modern warfare.

g. References: None

h. Modernization code - Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Army Prosthetic Research Program	U	6-59-02-006
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Devices, Prosthetics	PO-16

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service		
9. DIRECTING AGENCY: US Army Medical Research & Development Command	Army Prosthetic Research Lab. Walter Reed Army Medical Center	
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Veterans Administration (P&C) Advisory Committee on Artificial Limbs, NAS (C) Air Force (C) Navy (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 12 July 1954	59	250M
		60	250M
	15. PRIORITY: 2 / 16. MAJOR CATEGORY: 7.23	T	250M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Prosthetic replacement of amputated extremities did not adequately provide enough function to the amputee to permit resumption of vocations. With the influx of amputees from World War II definite criticism was leveled at existing artificial arms, legs, hands and hooks. A national appraisal developed the fact that very little could be done in industry with the limited facilities available and lack of professional approach to the fundamental and mechanical research pertaining to the problem. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objective of this project is to conduct fundamental research into all phases of prosthetic replacement including time and motion studies and development of individual components for the efficient fitting of amputations.

b. Approach: Fundamental and applied research in the field of prosthetics is conducted at the Army Prosthetics Research Laboratory, Walter Reed Army Medical Center.

c. Task: *Development of Upper Extremity Prosthetics

22. OASD (R & D)	SN.	CN.	C.	X.	I.	C.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO
Army Prosthetic Research Program	U	6-59-02
/	4.	5. REPORT DA 31 Dec.

d. Other Information: (1) This project consists entirely of scientifi research. Number of research tasks - 1. Number of research contracts - 0.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related item -

Agency	Project Number	Title
Navy	MR 7u 00 00	Rehabilitation of Disa Personnel

(6) Specific review points - Not applicable

e. Background History and Progress: (1) Background History: The Arm Prosthetics Research Laboratory was organized to conduct fundamental studies the amputee rehabilitation problem. It has the personnel and equipment to ap every conceivable angle of amputee rehabilitation and to assure standards of quality and performance in components of artificial limbs. This laboratory s as a testing and industrial laboratory in the national integrated program of prosthetic development.

(2) Progress: A re-sizeable arm socket for upper extremity prosth has been developed, and it may be adaptable also to the sockets of lower extr prostheses. This process eliminates wet resins from the limb construction sh and permits adjustment of the same limb socket of a prosthesis which no longe fits because of shrinkage or growth of the amputation stump but which is othe wise quite satisfactory. This development saves the Government, amputees, an limb shops thousands of dollars each year.

f. Future Plans: Studies will be conducted for continuous improvement in the material and function of prosthetic appliances for amputees.

g. References: Progress Reports of the Advisory Committee on Artifici Limbs, National Academy of Sciences.

h. Modernization code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Terminated	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Ocular Research	U	6-59-03-004
	4. INDEX NUMBER	5. REPORT DATE
		31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Eye, Ear, Nost & Throat	PO-16

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service		
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES
Navy (C) Air Force (C)		RES. DEV. TEST OP. EVAL.
	14. DATE APPROVED: 5 May 1952	18. FY. / FISCAL ESTIMATES
	15. PRIORITY: 2 / 16. MAJOR CATEGORY: 7.23	

19. REPLACED PROJECT CARD AND PROJECT STATUS

Terminated 10 March 1958. Work will be carried out under Project 6-59-12-022

20. REQUIREMENT AND/OR JUSTIFICATION

1. Ocular injury and disease are a source of considerable morbidity in military personnel. 2. Treatment of eye injuries is unique in that special instruments and special training are required. 3. Visual skills are important in the classification of military personnel.

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The object of ocular research was to study the cause and effect of ocular injury and disease in order to reduce morbidity and to provide better and more rapid treatment and rehabilitation.

b. Approach: Studies were made of the effects of hemorrhage into the vitreous humor; the feasibility of maintaining a readily available supply of corneas; and improvement of prosthetic eyes.

c. Task: Ocular Research

22. GASD (R & D)	SN.	CN.	C.	X.	I.	C.

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R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Ocular Research	U	6-59-03-004
	4.	5. REPORT DATE 31 Dec. 1958

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 1. Number of research contracts - 2 (transferred to Project 6-59-12-022).

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Items - Not applicable

(6) Specific Review Points - Not applicable

e. Background History and Progress: (1) Background History: Eye injuries during combat accounted for some 4% of the total hospitalizations for injuries in the Army. With the increased use of the fragmentation type of weapon, eye injuries become more common and severe. Studies were also made of the feasibility of maintaining a readily-available supply of corneas by a new method of preserving corneas by dehydration and storage in glycerine.

(2) Progress: Further investigations of the prosthetic eye and preservation of corneas will be conducted under Project 6-59-12-022 Traumatic Surgery and Shock.

f. Future Plans: Not applicable

g. References: Not applicable

h. Modernization code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
X-ray and Photographic Techniques	U	6-59-08-012
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Roentgenology and Radiology	PO-16

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 12 July 1954	59	48M
		60	48M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	48M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Field use requires x-ray equipment to be smaller, lighter, and more rugged than commercial counterparts without sacrifice of essential quality. Techniques must be rapid, adaptable to requirements of mass casualties and improved with respect to resolution. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: X-ray units share military specifications with other equipment for field use. However, considerable radiology is practiced in fixed medical installations so that volume, weight, and ruggedness are less a requirement than improvement of this means of diagnosis and clinical study. In both uses of x-ray equipment, simplification of techniques is advisable and appears possible.

b. Approach: To achieve better roentgenographic techniques through the application of pulsed x-ray, utilization of color film of standard manufacture, and studies of emulsions not sensitive to light but to x-ray.

GAAD (R & D)	SN.	CN.	C.	X.	I.	C.

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R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
X-ray and Photographic Techniques	U	6-59-08-012
	4.	5. REPORT DATE 31 Dec. 195

c. Task: "See Annual Research Task Summary" (Page 139)

*Improvement of Cineradiographic Techniques

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 1. Number of research contracts - 2.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Item -

Agency	Project Number	Title
Navy	NM 91 00 00	Development and Evaluation o Field Equipment

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

U. S. Army Medical Research Laboratory, Ft. Knox, Ky.
MD-934 & MD-935 - Dr. W. P. Dyke, Linfield Research Institute, McMinnville, Ore

e. Background History and Progress: (1) Background History: Pursuant to Change 2, AR 40-440, dated 7 June 1955, The Surgeon General is charged with the responsibility for research directed toward improvement of x-ray and photographic techniques used by the Army Medical Service.

(2) Progress: Results obtained from Pulsed X-rays on mice indicate that standard ionization chambers are inadequate for accurate measurements of dose. Due to the large volume of air in the standard chambers recombinations of ions occur before detection. Successful radiographic pictures have been taken from the laboratory model of a small field x-ray machine being developed for the Army Medical Service by the Linfield Institute of Research. This unit will provide chest x-rays with millisecond exposure time which avoids biological motion. It will weigh, when completed, about 45 pounds. It is battery operated and can probably be scaled to about 15 pounds for use with small objects (mice) in space vehicles.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
X-ray and Photographic Techniques	U	6-59-08-012
	4.	5. REPORT DATE: 31 Dec. 1958

f. Future Plans: Studies will be continued to improve existing and develop new roentgenographic techniques.

g. References: "See Annual Research Task Summary"

h. Modernization Code:- Not applicable

DD FORM 1 FEB 56 613-1
SUPERSEDES DD FORM 613-1, 1 FEB 55.

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Biological & Medical Aspects of Ionizing Radiation	U	6-59-08-014
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Biological Sciences	Roentgenology and Radiology	AW-6

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES
AFSWP (P) Navy (C) Air Force (C) OOR (C) AEC(P)		RES. DEV. TEST OP. EVAL.

14. DATE APPROVED	15. PRIORITY	16. MAJOR CATEGORY
12 July 1954	1C	7.23

18. FY.	FISCAL ESTIMATES
59	600M
60	500M
T	500M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Ionizing radiation is used by the Army Medical Service for diagnosis and therapy. It may be used against us as a weapon or be a by-product of modern weapons. Use of radioisotopes is increasing. No rational therapy yet exists for radiation sickness, nor are all effects known. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: Potential use of nuclear weapons necessitates an understanding of basic mechanisms involved in damage to biologic material by ionizing radiation in order that prophylactic and therapeutic measures may be developed. Conversely, controlled sources of this type of energy have been used for more than half a century for diagnosis and therapy of disease and trauma, including those of military significance. The availability of radioisotopes during the last decade has spurred advances in biochemistry, physiology, and other biologic sciences and offers intriguing possibilities for more accurate diagnosis and less insult to patients during therapy.

DD FORM 1 APR 55 613 REPLACES DD FORM 613, JAN 52.	SN.	CN.	C.	X.	I.	C.

R&D PROJECT CARD
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1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Biological & Medical Aspects of Ionizing Radiation	U	6-59-08-0
	4.	5. REPORT DATE 31 Dec. 1

b. Approach: Investigations are carried on to study and develop workab techniques in the application of radioisotopes; determine radiobiological eff upon the human body and continue the search for methods of prophylaxis and/or treatment of radiation injury.

c. Tasks: "See Annual Research Task Summary" (Pages 52 - 60 Incl.)

*Prophylaxis and Therapy of Radiation Injury

*Effects of External Radiation and Internal Emitters

*Biological Indicator of Radiation Injury

*Effects of Chronic Low Level Ionizing Radiation

d. Other Information: (1) This project consists entirely of scientific research tasks. Number of research tasks - 4. Number of research contracts

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date:- Not applicable

(5) Same or Related Item -

Agency	Project Number	Title
Air Force	7753	Air Force Preventive Medic Protection of Personnel (7
Air Force	7757	Aeromedical Problems of At Energy
Navy	NM 62 00 00	Medical Problems Related t Ionizing Radiation
AEC-University of Rochester	UR-532	Studies on Large Area Sub- Fabric Burns
AEC-General Electric Company	HW-52896	Biology and Medicine
Office of Ordnance Research	OOR No. 291	Microwave & Radiofrequency Spectroscopy

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Biological & Medical Aspects of Ionizing Radiation	U	6-59-08-014
	4.	5. REPORT DATE 31 Dec. 1958

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

Task - Prophylaxis and Therapy of Radiation Injury

MD-428 - Dr. Vincent P. Collins, Baylor University, Houston, Texas
MD-293 - Dr. Milton Lessler, Ohio State University, Columbus, Ohio
MD-991 - Dr. John Howard, Hahnemann Medical College, Philadelphia, Pa.
MD-953 - Dr. John M. Knox, Baylor University, Houston, Texas

Task - Effects of External Radiation and Internal Emitters

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-897 & MD-927 - Dr. C. F. Comar, Cornell University, Ithaca, N. Y. (AFSWP funds) (MD-897 Terminated 30 September 1958)
MD-900 - Dr. E. H. Smith, E. H. Smith & Co., Silver Spring, Md. (Terminated 30 September 1958)
MD-901 - Dr. W. P. Dyke, Linfield Research Institute, McMinnville, Ore. (Terminated 30 September 1958)
MD-995 - Dr. George R. Meneely, Vanderbilt University, Nashville, Tenn.
MD-968 - Dr. Alf S. Alving, University of Chicago, Chicago, Ill.
MD-514 - Dr. Lloyd J. Roth, University of Chicago, Chicago, Ill. (Terminated 28 February 1958)

Task - Biological Indicator of Radiation Injury

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-191 - Dr. Eugene P. Pendergrass, University of Pennsylvania, Philadelphia, Pa.
MD-525 - Dr. John K. Hampton, Jr., Tulane University, New Orleans, La.
MD-910 & MD-1022 - Dr. James J. Nickson, Sloan-Kettering Institute for Cancer Research, New York, N. Y. (AFSWP funds) (MD-910 Terminated 31 October 1958)
MD-937 - Dr. Willard J. Visek, University of Chicago, Chicago, Ill.

Task - Effects of Chronic Low Level Ionizing Radiation

US Army Medical Research Laboratory, Ft. Knox, Ky.
MD-945 & MD-957 - Dr. Sidney O. Brown, Texas A&M Research Foundation, College Station, Texas
MD-943 - Dr. Milton Elkin, Albert Einstein College of Medicine, New York, N. Y.
MD-956 - Dr. Pauline B. Mack, Texas Woman's University, Denton, Texas
MD-962 - Dr. Howard Zauder, Albert Einstein College of Medicine, New York, N. Y.
MD-955 - Dr. Charles E. Brambel, University of Notre Dame, Notre Dame, Ind.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Biological & Medical Aspects of Ionizing Radiation	U	6-59-08-01
	4.	5. REPORT DATE 31 Dec. 19

MD-967 - Dr. Richard R. Overman, University of Tennessee, Memphis, Tenn.
MD-970 - Dr. Norton Nelson, New York University-Bellevue Medical Center, New York, N. Y.
MD-983 - Dr. Charles L. Wisseman, Jr., University of Maryland, Baltimore, Md.
MD-969 - Dr. Barry Wood, Jr., The Johns Hopkins University, Baltimore, Md.

e. Background History and Progress: (1) Background History: The atomic bomb, as a military source of ionizing radiation, requires that practical prophylactic and therapeutic measures be developed to minimize the number of casualties which may result from the use of this weapon. In addition, maximum use must be made of the beneficial features of ionizing radiation as applied t military medicine.

(2) Progress: Work is continuing on the effects of total and partia body irradiation. A whole body counting facility has been acquired from the Atomic Energy Commission which provides fundamental information on the accumulation of gamma emitting radioisotopes in the tissue of man. Need for studies the effects of chronic low level ionizing radiation, such as might exist after detonation of several nuclear weapons in a given area in which soldiers and civilians must continue to live, work or fight has become apparent. Proposals have been obtained to investigate the effects of this type of environment.

f. Future Plans: Studies will continue in order to determine the effects of total and partial body irradiation; develop and improve existing methods of therapy and prophylaxis; study effects of low level doses of radiation upon susceptibility and resistance to infection, physical trauma, healing; and the management of casualties.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Resuscitation	U	6-59-09-010
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Anesthesiology & Resuscitation	PO-11

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES
Chemical Corps (P) Navy (P) Air Force (P)		RES. DEV. TEST OP. EVAL.

14. DATE APPROVED	15. PRIORITY	16. MAJOR CATEGORY
12 July 1954	1C	7.23

18. FY.	FISCAL ESTIMATES
59	81M
60	100M
T	100M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Military personnel during training and especially during combat are exposed frequently to high-tension wires, are often in danger of submersion in water, and may be exposed to chemical agents such as nerve gases. These exposures may cause casualties who will require prompt and effective artificial respiration measures if their lives are to be saved. It is therefore essential that continued efforts be directed toward improving the methods of artificial respiration, both manual and mechanical. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: To develop simple, effective methods of artificial respiration which can be used on military casualties requiring this procedure.

b. Approach: To conduct physiologic evaluations of mechanical respirators, to evaluate new resuscitators, and to improve first aid treatment of nerve gas casualties.

c. Tasks: "See Annual Research Task Summary" (Pages 140 - 141)

*Artificial Respiration
*Respiratory Functions

SN.	CN.	C.	X.	I.	C.

DD FORM 1 APR 55 613 REPLACES DD FORM 613, 1 JAN 53.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Resuscitation	U	6-59-09-01(
	4.	5. REPORT DATE
		31 Dec. 19

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 2. Number of research contracts - 5.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Items -

Agency	Project Number	Title
Air Force	7759	Air Evacuation
Chemical Corps	4-80-02-030	Mask-to-Mask Resuscitator
Navy	NS 181-009	Improvement of Navy Type Oxygen Breathing Apparatus

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

U. S. Army Medical Service School, BAMC, Ft. Sam Houston, Texas
MD-507 - Dr. James O. Elam, Roswell Park Memorial Institute, Buffalo, N. Y.
MD-209 - Dr. David G. Greene, University of Buffalo, Buffalo, N. Y.
MD-858 - Dr. Peter Safar, Baltimore City Hospitals, Baltimore, Md.
MD-189 - Dr. F. Hitchcock, Ohio State University, Columbus, Ohio
MD-598 - Dr. Benjamin B. Ross, University of Oregon, Portland, Ore.

e. Background History and Progress: (1) Background History: This project was initiated in 1950 to evaluate the various methods of manual artificial respiration. At that time there was growing evidence that the then popular Schafer method of manual artificial respiration did not produce an adequate air exchange in the lungs, and that other methods might be more effective. Expired air methods of resuscitation have been proved superior to chest pressure methods.

(2) Progress: During the past year, conclusive evidence has been presented that mouth-to-mouth resuscitation is the most and probably the only really effective way of giving artificial respiration to a victim of asphyxiation. A research documentary movie depicting this method was made, has been shown widely, and is in the process of being made into a Professional

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Resuscitation	U	6-59-09-010
	4.	5. REPORT DATE: 31 Dec. 1958

Medical Film. Exhibits showing the superiority of this method have been shown at several medical meetings and meetings of other personnel interested in first aid and rescue work. Numerous articles and news items concerning this subject have been published in the professional and lay press. The method has been adopted by the Army Medical Service as the most effective and preferred method for giving artificial respiration. A pilot study of teaching this method was successful. Appropriate field and technical manuals are being revised accordingly and training aids for instruction of all personnel in this method are being devised.

f. Future Plans: Studies will be continued on methods of artificial respiration. Efforts will be made to improve, further evaluate and develop the technique of mask-to-mask and mouth-to-mouth resuscitation.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Traumatic Surgery and Shock	U	6-59-12-022
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Therapeutics	PO-16

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service		
9. DIRECTING AGENCY: US Army Medical Research and Development Command	See Item 21d(7)	
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 12 July 1954	59	1,035M
		60	1,030M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	1,030M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Traumatic wounds and shock are the classical injuries suffered by the vast majority of battle casualties. Reduction of mortality, hospitalization and permanent disability, and early restoration of the wounded to duty, are directly dependent upon the advances which can be made in this field. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: To study the mechanisms, effects and control of hemorrhagic and traumatic shock, and the acute physiologic effects of wounding; to determine the factors essential for optimum wound healing, and to develop practical methods to promote wound healing; to develop improved surgical methods for the handling and repair of combat wounds and traumatic injuries; to determine the causes, prevention, and treatment of the complications of traumatic wounds and injuries.

b. Approach: Studies of the surgery of wounds and of the mechanism and treatment of shock will be continued. These include chemical studies and investigations of the metabolic and nutritional state of the wounded in relation

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Traumatic Surgery and Shock	U	6-59-12-0
	4.	5. REPORT DATE 31 Dec. 1

to their recovery, development of better treatment of severe abdominal wounds and head wounds, research on wound healing and infections, post-traumatic ren insufficiency, resuscitation, and vascular surgery.

c. Tasks: "See Annual Research Task Summary (Pages 142 - 155 Incl)

*Shock and Circulatory Physiology

*Orthopedic, Vascular, Thoracic and Neurological Surgery

*Surgical Metabolism and Renal Function

*Anesthesia, Hypothermia and Frostbite

*Surgical Bacteriology

d. Other Information: (1) This project consists entirely of scientifi research. Number of research tasks - 5. Number of research contracts - 46.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Item -

Agency	Project Number	Title
Air Force	7756	Air Force Clinical Medicin
Navy	NM 71 00 00	Studies for Development of General and Military Surge

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

Task - Shock and Circulatory Physiology

U. S. Army Surgical Research Unit, BAMC, Ft. Sam Houston, Texas
Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-551 - Dr. W. A. Altemeier, University of Cincinnati, Cincinnati, Ohio
MD-205 - Dr. Stanley E. Bradley, Columbia University, New York, N. Y.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Traumatic Surgery and Shock	U	6-59-12-022
	4.	5. REPORT DATE 31 Dec. 1958

MD-872 - Dr. Abraham I. Braude, University of Pittsburgh, Pittsburgh, Pa.
MD-674 - Dr. R. Adams Cowley, University of Maryland, Baltimore, Md.
MD-668 - Dr. Charles W. Crumpton, University of Wisconsin, Madison, Wisc.
MD-116 - Dr. Franklin H. Epstein, Yale University, New Haven, Conn.
MD-245 - Dr. Jacob Fine, Harvard University, Cambridge, Mass.
MD-038 - Dr. H. S. Mayerson, Tulane University, New Orleans, La.
MD-919 - Dr. George L. Nardi, Harvard University, Cambridge, Mass.
MD-884 - Dr. Jay P. Sanford, University of Texas Southwestern Medical School, Dallas, Texas
MD-666 - Dr. Robert E. Scully, Massachusetts General Hospital, Boston, Mass.
MD-591 - Dr. James J. Smith, Marquette University, Milwaukee, Wisc.
MD-511 - Dr. Harry M. Vars, University of Pennsylvania, Philadelphia, Pa.
MD-993 - Dr. Benjamin Zweifach, New York University-Bellevue Medical Center, New York, N. Y.

Task - Orthopedic, Vascular, Thoracic and Neurological Surgery

Walter Reed Army Hospital, WRAMC, Washington, D. C.
Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-750 - Dr. Richard H. Adler, University of Buffalo, Buffalo, N. Y.
MD-980 - Dr. Franklin L. Ashley, University of California, Los Angeles, Calif.
MD-523 - Dr. H. T. Ballantine, Jr., Massachusetts General Hospital, Boston, Mass.
MD-888 - Dr. Joseph S. Barr, Massachusetts General Hospital, Boston, Mass.
MD-958 - Dr. H. H. Brindley, Scott & White Memorial Hospital, Temple, Texas
MD-545 - Dr. James B. Campbell, Columbia University, New York, N. Y.
MD-273 - Dr. Zacharias Dische, Columbia University, New York, N. Y.
MD-886 - Dr. Ira A. Ferguson, Emory University, Ga.
MD-394 - Dr. Michael J. Hogan, University of California, San Francisco, Calif.
MD-889 - Dr. Peter V. Karpovich, Springfield College, Springfield, Mass.
MD-697 - Dr. H. William Scott, Vanderbilt University, Nashville, Tenn.
MD-796 - Dr. Morton M. Ziskind, Tulane University, New Orleans, La.

Task - Surgical Metabolism and Renal Function

U. S. Army Surgical Research Unit, BAMC, Ft. Sam Houston, Texas
Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-932 - Dr. Walter L. Bloom, Piedmont Hospital, Atlanta, Ga.
MD-707 - Dr. Lewis W. Bluemle, Jr., University of Pennsylvania, Philadelphia, Pa.
MD-739 - Dr. Sherman Kupfer, Mt. Sinai Hospital, New York, N. Y.
MD-868 - Dr. James D. McMurray, Baylor University, Houston, Texas
MD-429 - Dr. John P. Merrill, Harvard University, Cambridge, Mass.
MD-799 - Dr. Morton D. Pareira, Jewish Hospital of St. Louis, St. Louis, Mo.
MD-747 - Dr. J. A. Schilling, Oklahoma Med. Research Foundation, Oklahoma City, Okla.
MD-761 - Dr. David Seligson, University of Pennsylvania, Philadelphia, Pa. (Terminated 30 November 1958)

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Traumatic Surgery and Shock	U	6-59-12-02
	4.	5. REPORT DATE 31 Dec. 19

Task - Anesthesia, Hypothermia and Frostbite

U. S. Army Surgical Research Unit, BAMC, Ft. Sam Houston, Texas
Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-155 - Dr. E. F. Adolph, University of Rochester, Rochester, N. Y.
MD-645 - Dr. Gustav J. Dammin, Harvard University, Cambridge, Mass.
MD-564 - Dr. Michael E. Debakey, Baylor University, Houston, Texas
MD-599 - Dr. Robert D. Dripps, University of Pennsylvania, Philadelphia, Pa.
MD-715 - Dr. Bernard Fisher, University of Pittsburgh, Pittsburgh, Pa.
MD-865 - Dr. Everett G. Grantham, University of Louisville, Louisville, Ky.
MD-150 - Dr. Steven M. Horvath, State University of Iowa, Iowa City, Iowa
(Terminated 30 September 1958)
MD-629 - Dr. Lester C. Mark, Columbia University, New York, N. Y.

Task - Surgical Bacteriology

U. S. Army Surgical Research Unit, BAMC, Ft. Sam Houston, Texas
Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-959 - Dr. Curtis P. Artz, University of Mississippi, Jackson, Miss.
MD-892 & MD-1019 - Dr. Sidney Cohen, Harvard University, Cambridge, Mass.
(MD-892, Terminated 30 September 1958
MD-724 - Dr. Daniel L. Weiss, George Washington University, Washington, D. C.

e. Background History and Progress: (1) Background History: In order to reduce mortality, hospitalization and permanent disability, and to effect early restoration of the wounded to duty, continuous research in traumatic surgery and shock is necessary. With the termination of Project 6-59-03-004 (Ocular Research), two research contracts were transferred to this project.

(2) Progress: A high percentage of the disabilities resulting from war wounds has always been caused by injuries to the peripheral nerves and spinal cord, the latter resulting in the well-known paraplegics and quadriplegics. A promising advance during the past year indicates that the use of monomolecular H. A. Millipore tubes around injured peripheral nerves is of definite benefit in the treatment of these injuries. The experimental use of this material around severed central nervous structures like the spinal cord and the optic nerve permits axons to regenerate across gaps, but so far there has been no return of function of areas supplied by these injured and repaired structures. The use of millipore as an adjunct to repair of severed tendons is also being investigated, and the results are encouraging.

f. Future Plans: Studies will continue with increased efforts to determine the cause and development methods to overcome irreversible shock of the wound study the various alterations of metabolism resulting from surgery and/or

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Traumatic Surgery and Shock	U	6-59-12-022
	4.	5. REPORT DATE 31 Dec. 1958

injury and certain deficiencies upon healing; and, develop improved surgical methods for the handling and repair of combat wounds and traumatic injuries.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Radiation and Thermal Burns	U	6-59-12-028
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Therapeutics	AW-6

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research & Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (P) AFSWP(P) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 12 July 1954	59	620M
		60	500M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	500M
19. REPLACED PROJECT CARD AND PROJECT STATUS			

20. REQUIREMENT AND/OR JUSTIFICATION

The large number of casualties expected from atomic explosions presents staggering medical problems. Many of these casualties may suffer thermal burns, many extensive and severe. A number of the burns will be complicated by traumatic and/or radiation type injuries. Detailed knowledge of the types and combination of injuries, and practical methods of rescue resuscitation and treatment, which are applicable to a large number of casualties are urgently required. (Par 1412c CDOC)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objectives of this project are to develop new and improve existing methods for treatment of extensively burned patients; to study potential drugs suitable for treatment of thermal burns of the respiratory tract; to find methods of controlling infection in burned patients; to devise methods of replacing the burned patients skin; and to study methods of prompt removal of burn eschars and early closure of burn wounds.

b. Approach: To study all phases of burn therapy. These include studies of blood for transfusion, plasma and plasma expanders, renal functions in burns, metabolism in burns and antibiotics; methods of making homografts of skin permanently acceptable to the recipient; relationships of hormones, vitamins,

(R & D)	SN.	CN.	C.	X.	I.	C.

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1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Radiation and Thermal Burns	U	6-59-12-02
	4.	5. REPORT DATE 31 Dec. 195

enzymes and nutrition to recovery processes in the burned patient; and the practicability and feasibility of debriding large full-thickness burns by enzymes and by surgery.

c. Tasks: "See Annual Research Task Summary" (Pages 156-161 Incl.)

*Studies of Physiopathology, Treatment and Infections of Burns

*Studies of Tissue Transplants

*Studies of Respiratory Burns

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 3. Number of research contracts - 22.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items -

Agency	Project Number	Title
Navy	NM 61 00 00	Improved Methods and Equipment For Care and Evacuation of Casualties in Amphibious Warfare
Navy	NM 62 00 00	Medical Problems Related to Ionizing Radiation
Air Force	7756	Air Force Clinical Medicine
Atomic Energy Commission	HW-47500	Biology Research Annual Report
" " "	UR-491 W-7401-Eng-49	Pathways and Rate of Hemoglobin Catabolism During Experimental Hemoglobinemia in Swine

(6) Specific review points - Not applicable

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Radiation and Thermal Burns	U	6-59-12-028
	4.	5. REPORT DATE 31 Dec.1958

(7) Item 12 - Contractor and/or Laboratory:

Task - Studies of Physiopathology, Treatment and Infections of Burns

U.S. Army Surgical Research Unit, BAMC, Fort Sam Houston, Texas
Walter Reed Army Institute of Research, WRAMC, Washington, D.C.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Radiation and Thermal Burns	U	6-59-12-028
	4.	5. REPORT DATE: 31 Dec. 195

(2) Progress: It has been known for some time that burn wounds are always infected with bacteria and that this condition cannot be remedied by giving antibiotics or other drugs systemically or applying them locally. It ha been learned, however, that application of skin grafts will reduce the bacteria count of granulating burn wounds to practically zero in 24 hours, thus eliminat infections and pointing out the importance of obtaining early coverage of the b wound with skin grafts from either the patient himself or from a donor.

f. Future Plans: Studies will continue to improve and simplify the trea ment of burns and to decrease the mortality of severe burns. In the event of nuclear warfare, burns will be one of the most serious medical treatment proble

g. References: "See Annual Research Task Summary"

h. Modernization code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT Progress	REPORT CONTROL SYMBOL CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Artificial Plasma Volume Expanders	U	6-59-12-029
	4. INDEX NUMBER	5. REPORT DATE 31 Dec.1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Therapeutics	AW-6

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY US Army Medical Research & Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED 1 August 1955	59	115M
		60	115M
	15. PRIORITY 1C / 16. MAJOR CATEGORY 7.23	T	115M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

The use of atomic weapons in warfare will produce enormous numbers of military and civilian casualties. On an emergency basis there will not be enough blood or blood derivatives to restore effectively the circulating blood volume of these casualties. Stockpiles of a suitable artificial "shock solution" or artificial plasma volume expander are urgently needed. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objective of this project is to develop a cheap, stable, safe and effective artificial plasma volume expander which can be stockpiled in large quantities.

b. Approach: To study and evaluate artificial plasma volume expanders, to determine the degree of plasma volume expansion, the duration of the effect, how the artificial substance is eliminated from the body and the undesirable effects of these substances. Substances such as gelatin, oxypolygelatin, synthetic polypeptides, polyvinylpyrrolidin (PVP), dextran, and keratin are being studied.

CLASS (R & D)	SN.	CN.	C.	X.	I.	C.

DD FORM 1 APR 55 613 REPLACES DD FORM 613, ... 53.

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1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Artificial Plasma Volume Expanders	U	6-59-12-02
	4.	5. REPORT DATE 31 Dec.195

c. Tasks: "See Annual Research Task Summary" (Page 162)

*Studies of Artificial Plasma Volume Expanders

d. Other Information: (1) This project consists entirely of scientifi research. Number of research tasks 1. Number of research contracts - 9.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items - Not applicable

(6) Specific review points - Not applicable

(7) Item 12 - Contractor and/or Laboratory:

Task - Studies of Artificial Plasma Volume Expanders

U.S. Army Surgical Research Unit, BAMC, Fort Sam Houston, Texas
MD-577 - Dr. W. A. Altemeier, University of Cincinnati, Ohio
MD-880 - Dr. T. G. Blocker, University of Texas, Galveston, Texas
MD-219 - Dr. Elkan R. Blout, Children's Medical Center, Boston, Mass.
MD-298 - Dr. Dan H. Campbell, California Institute of Technology, Pasadena, Ca (Terminated 30 September 1958)
MD-111 - Dr. Frederick R. Eirich, Polytechnic Institute of Brooklyn, N.Y. (Terminated 30 September 1958)
MD-921 - Dr. Edward J. Hehre, Albert Einstein College, Yeshiva University, N.Y.
MD-248 - Dr. Paul H. Maurer, University of Pittsburgh, Pittsburgh, Pa.
MD-272 - Dr. James M. Neill, Cornell University Medical College, New York (Terminated 30 June 1958)
MD-369 - Dr. Louis G. Welt, University of North Carolina, Chapel Hill, N.C.

e. Background History and Progress: (1) Background History: In the ev of atomic warfare a mass of casualties suffering from shock incident to burns, traumatic wounds and hemorrhage will present an immediate problem of profound magnitude. The use of blood and blood derivatives to expand the circulating b volume in the treatment of shock is a well established surgical principle. Av able supplies of blood and blood derivatives to meet this emergency would be sufficient. It is imperative that a suitable product or products be develope which can be stockpiled for use as plasma volume expanders in the event of an emergency.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Artificial Plasma Volume Expanders	U	6-59-12-029
	4.	5. REPORT DATE 31 Dec.1958

(2) Progress: Work with synthetic plasma expanders has added basic knowledge to this field and may eventually result in a completely satisfactory plasma volume expander which does not depend upon human sources.

f. Future Plans: Studies will continue on the efficacy of artificial substances as plasma volume expanders, and detection of undesirable effects of these substances. Synthetic polypeptides are still in the laboratory stage of study, but much has been learned about these substances.

g. References: "See Annual Research Task Summary"

h. Modernization code: not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Blood and Blood Derivatives	U	6-59-12-030
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec.1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Therapeutics	AW-6

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service		
9. DIRECTING AGENCY: US Army Medical Research & Development Command	See Item 21d(7)	
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES
Navy (C) Air Force (C)		RES. DEV. TEST OP. EVAL.

14. DATE APPROVED	15. PRIORITY	16. MAJOR CATEGORY
1 August 1955	1C	7.23

18. FY.	FISCAL ESTIMATES
59	700M
60	700M
T	700M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

In the event of future warfare with atomic weapons, an enormous number of military and civilian casualties with burns, traumatic wounds, and wound shock are anticipated. Large quantities of whole blood and blood derivatives will be needed immediately. There are still many problems inherent in the large scale use of whole blood and blood derivatives. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objectives of this project are to develop a practical method to prolong the usable life of whole blood or red cell suspensions, an effective, safe method for sterilization of whole blood and plasma to rid them of hepatitis virus, improved methods for prevention and treatment of bleeding and intravascular clotting, and ways and means of reducing transfusion reactions.

b. Approach: Current effort is to study the effects of storage, heating and other methods of treatment upon plasma and plasma substitutes; red and white blood cells and platelets in connection with blood storage, preservation and coagulation; hemorrhagic disturbances and abnormalities of blood clotting; methods of preserving blood; and effects of transfusions of banked blood.

0488 (R & D)	SN.	CN.	C.	X.	I.	C.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Blood and Blood Derivatives	U	6-59-12-0
	4.	5. REPORT DAT
		31 Dec. 1

c. Tasks: "See Annual Research Task Summary" (Pages 163-166 Incl.)

*Studies of Preservation, Storage and Coagulation of Blood and Transfusion Problems

*Studies of Plasma and Plasma Substances. (1) Heat-Treated Plasma

d. Other Information: (1) This project consists entirely of scientif research. Number of research tasks - 2. Number of research contracts - 36.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items -

Agency	Project Number	Title
Navy	NM 02 00 00	Fundamental Studies in Bio-Chemistry
Air Force	7756	Air Force Clinical Medic

(6) Specific review points - Not applicable

(7) Item 12 - Contractor and/or Laboratory:

Task - Preservation, Storage and Coagulation of Blood and Transfusion Problems

Walter Reed Army Institute of Research, WRAMC, Washington, D.C.
MD-171 - Dr. Benjamin Alexander, Harvard University, Cambridge, Mass. (Terminated 28 February 1958)
MD-652 - Dr. Charles E. Brambel, University of Notre Dame, Notre Dame, Ind.
MD-1013- Dr. E. E. Cliffton, Sloan Kettering Institute for Cancer Research,N.
MD-508 - Dr. Clement A. Finch, University of Washington, Seattle, Washington
MD-701 - Dr. Frank H. Gardner, Harvard University, Cambridge, Mass.
MD-610 - Dr. John G. Gibson, II, Harvard University, Boston, Mass.
MD-464 - Dr. Russell A. Huggins, Baylor University, Houston, Texas
MD-908 - Dr. E. R. Jennings, Wayne State University, Detroit, Michigan
MD-615 - Dr. H. S. Kupperman, NYU-Bellevue Medical Center, New York, N.Y.
MD-542 - Dr. Fabion Lionetti, Boston University, Boston, Mass

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Blood and Blood Derivatives	U	6-59-12-030
	4.	5. REPORT DATE 31 Dec. 1958

MD-195 - Dr. E. T. Mertz, Purdue University, Lafayette, Ind.
MD-647 - Dr. Kent D. Miller, Health Research Inc., NY State Department of Health, Albany, N.Y. (Formerly Dr. Helen Van Vunakis)
MD-087 - Dr. J. Haskell Milstone, Yale University, New Haven, Conn.
MD-275 - Dr. John H. Olwin, Presbyterian Hospital, Chicago, Ill.
MD-612 - Dr. George D. Penick, University of North Carolina, Chapel Hill, N.C.
MD-534 & Navy Contract - Dr. Robert B. Pennell, Protein Foundation, Inc., Jamaica Plain, Mass.
MD-458 - Dr. Eric H. Ponder, Nassau Hospital, Mineola, N.Y.
MD-894 - Dr. Henry T. Randall, Sloan-Kettering Inst. for Cancer Research, N.Y.,N.Y. (Terminated 31 October 1958)
MD-717 - Dr. Walter Redisch, NYU-Bellevue Medical Center, N.Y.,N.Y.
MD-736 - Dr. S. William Ross, University of Arkansas, Fayetteville, Ark.
MD-713 - Dr. Robert F. Schilling, University of Wisconsin, Madison, Wisc. (Terminated 31 March 1958)
MD-611 - Dr. David R. Schwarz, Schwarz Laboratories, Inc., Mt. Vernon, N.Y.
MD-042 - Dr. Max M. Strumia, Bryn Mawr Hospital, Bryn Mawr, Pa.
MD-720 - Dr. Alex W. Ulin, Hahnemann Medical College, Philadelphia, Pa.
MD-198 - Dr. David F. Waugh, Massachusetts Institute of Technology, Boston, Mass.
MD-632 - Dr. Lawrence E. Young, University of Rochester, Rochester, N.Y.

Task - Plasma and Plasma Substances (1) Heat Treated Plasma

Walter Reed Army Institute of Research, WRAMC, Washington, D.C.
MD-093 - Dr. J. Garrott Allen, University of Chicago, Chicago, Ill.
MD-907 - Dr. Grant R. Bartlett, Scripps Clinic and Research Foundation, La Jolla, Calif.
MD-555 - Dr. John P. Bunker, Massachusetts General Hospital, Boston, Mass.
MD-762 & MD-987 - Dr. Alfred Chamutin, University of Virginia, Charlottesville,Va.
MD-916 - Dr. Richard Ehrlich, Armour Research Foundation, Illinois Institute of Technology, Chicago, Ill.
MD-651 - Dr. George P. Fulton, Boston University, Boston, Mass.
MD-920 - Dr. Paul I. Hoxworth, University of Cincinnati, Cincinnati, Ohio
MD-614 - Dr. Dwight J. Mulford, University of Kansas, Lawrence, Kansas
MD-911 - Dr. Robert B. Pennell, Protein Foundation, Inc., Jamaica Plain, Mass.

e. Background History and Progress: (1) Background History: The increasing need for large quantities of whole blood and blood derivatives required for treatment of burns, traumatic wounds and for use in new techniques of surgery has presented many problems. Also, in the event of warfare with atomic weapons, an even greater need for blood will exist.

(2) Progress: Several experimental techniques which permit the almost indefinite preservation and storage of red blood cells by freezing and maintaining

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Blood and Blood Derivatives	U	6-59-12-03
	4.	5. REPORT DATE 31 Dec. 195

them at low temperatures have been developed. The practicality and efficiency of these methods need improvement.

Conclusive statistical proof has been obtained that storage of plasma in t liquid state at 31° C. for six months is an effective and reliable method of destroying infective homologous serum jaundice or hepatitis virus.

f. Future Plans: Highly technical research studies will be continued on the complex subject of hemorrhagic disturbances and abnormalities of blood clot ing; the various effects of blood transfusion; methods of preserving blood for transfusion more than 21 days; and rendering pooled plasma and blood free of hepatitis virus and finding a plasma substance suitable for safe administration to patients and stockpiling.

g. References: "See Annual Research Task Summary"

h. Modernization code: Not applicable

R & D PROJECT CARD

TYPE OF REPORT: Progress

REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE: Clinical Investigations

2. SECURITY OF PROJECT: U

3. PROJECT NO.: 6-60-01-002

4. INDEX NUMBER:

5. REPORT DATE: 31 Dec.1958

6. BASIC FIELD OR SUBJECT: Internal Medicine

7. SUB FIELD OR SUBJECT SUB GROUP: Investigations, Authorized

7A. TECH. OBJ.: PO-16

8. COGNIZANT AGENCY: Army Medical Service

9. DIRECTING AGENCY: US Army Medical Research & Development Command

10. REQUESTING AGENCY:

11. PARTICIPATION AND/OR COORDINATION:
Navy (C)
Air Force (C)

12. CONTRACTOR AND/OR LABORATORY: See Item 21d(7)

CONTRACT/W. O. NO.:

13. RELATED PROJECTS:

14. DATE APPROVED: 5 January 1953

15. PRIORITY: 1C

16. MAJOR CATEGORY: 7.23

17. EST. COMPLETION DATES

RES.	
DEV.	
TEST	
OP. EVAL.	

18. FY.	FISCAL ESTIMATES
59	32M
60	50M
T	50M

19. REPLACED PROJECT CARD AND PROJECT STATUS:

20. REQUIREMENT AND/OR JUSTIFICATION: Many of the diseases and injuries which occur in military personnel require difficult procedures for diagnosis, intricate and exacting methods of treatment, and often long periods of rehabilitation. After treatment and rehabilitation have been completed, each individual patient must be carefully evaluated to determine his fitness for military duty. For some, only a limited type duty will be possible; for others, discharge or retirement for medical reasons will be in order. It is essential that diagnostic methods, therapeutic procedures and rehabilitation programs in all Army hospitals be constantly improved and revised in order to assure the best possible medical care for military patients in the shortest period of time. It is equally important to utilize the best available criteria, and to constantly improve and expand these criteria for determining physical and mental fitness to perform military duty. Research in these areas is XXXXXXXXXXXXXXXX is designed to decrease patient hospital stay and to return more patients to military duty, thus effecting a saving of military manpower. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE:

a. Brief: To conduct clinical investigations in Army hospitals to improve diagnostic, therapeutic, and rehabilitation methods and procedures, and to establish better criteria for determining physical and mental fitness for military duty.

(R & D)	SN.	CN.	C.	X.	I.	C.

DD FORM 1 APR 55 613 — REPLACES DD FORM 613, 1 JUN 52.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Clinical Investigations	U	6-60-01-002
	4.	5. REPORT DATE 31 Dec.1958

b. Approach: Clinical investigations are being conducted on patients at various Army hospitals in an effort to improve patient care, by developing and improving diagnostic methods, therapeutic techniques and rehabilitation procedures.

c. Task: "See Annual Research Task Summary." (Page 102)

*Clinical Studies of Diseases and Injuries

d. Other Information: (1) This project comes under the category of significant scientific research. Number of research tasks - 1. Number of research contracts - 0.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items -

Agency	Project Number	Project Title
Air Force	7756	Air Force Clinical Medicine
Navy	NM 72 00 00	Studies Including Etiology, Diagnosis, Pathology, and Treatment in General Military Medicine

(6) Specific review points - Not applicable

(7) Item 12 - Contractor and/or Laboratory:

Walter Reed Army Medical Center, Washington, D.C.
Valley Forge Army Hospital, Phoenixville, Pa.
Brooke Army Hospital, Brooke Army Medical Center, Fort Sam Houston, Texas
William Beaumont Army Hospital, El Paso, Texas
Fitzsimons Army Hospital, Denver, Colo.
Martin Army Hospital, Fort Benning, Ga.
Madigan Army Hospital, Tacoma, Washington
Letterman Army Hospital, San Francisco, Calif.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Clinical Investigations	U	6-60-01-002
	4.	5. REPORT DATE 31 Dec.1958

e. Background History and Progress: (1) Background History: Many patients in Army hospitals have diseases and injuries, which are peculiar to or are much more prevalent in military personnel than in the civilian population. Army hospitals contain a wealth of clinical material which, if adequately studied, should provide valuable new information which would greatly aid in the solution of many military medical problems. The inauguration of a formal and integrated, clinical investigation program at the various Army hospitals, provides a great stimulus to medical officers, especially young interns and residents, and affords them an opportunity to participate in important military medical research. The ultimate aim of this project is to reduce the hospital stay of patients in Army hospitals, return more patients to active military duty, and clarify and refine the medical criteria for discharge and retirement for medical reasons.

(2) Progress: A wide variety of clinical problems have been investigated. To date, studies and analyses indicate that the present methods and procedures of treating tuberculosis in the Army are correct and that the use of pulmonary surgery in properly selected cases is resulting in an effective saving of military manpower.

f. Future Plans: Investigations will continue in the various Army hospitals on the clinical problems that have primary value and peculiar interest to the military.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

DD FORM 1 FEB 56 613-1 REPLACES DD FORM 613-1, 1 FEB 55.

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Metabolism	U	6-60-09-012
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec.1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Internal Medicine	Investigations, Authorized	PO-16

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research & Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 11 July 1955	59	854M
		60	850M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	850M
19. REPLACED PROJECT CARD AND PROJECT STATUS			

20. REQUIREMENT AND/OR JUSTIFICATION

Abnormal metabolic alterations occurring with adverse climatic and environmental factors at the time of the soldier's illness or injury impose additional impediments to his recovery and convalescence. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: To study the requirements of macronutrients (fat, carbohydrate and protein) and the micro-nutrients (vitamin and mineral) in soldiers severely injured or ill.

b. Approach: Studies are designed to delineate essential and significant metabolic derangements and their relationships to wound healing and recuperation following disease and injury.

c. Tasks: "See Annual Research Task Summary." (Pages 103-106 Incl.)

(R&D)	SN.	CN.	C.	X.	I.	C.

FORM APR 61 613 DD FORM 613.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Metabolism	3	6-60-09-01
	4.	5. REPORT DATE 31 Dec.195

*Metabolic Aspects of Trauma, Severe Illness and Malnutrition

*Development of Effective Methods of Correcting Metabolic Disorders

d. Other Information: (1) This project includes important scientific research tasks. Number of research tasks - 2. Number of research contracts -

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items -

Agency	Project Number	Project Title
Air Force	7756	Air Force Clinical Medicir
Navy	NM 01 00 00	Fundamental Studies in Physiology

(6) Specific review points - Not applicable

(7) Item 12 - Contractor and/or Laboratory:

Metabolic Aspects of Trauma, Severe Illness and Malnutrition

U. S. Army Tropical Medical Research Laboratory, San Juan, P.R.
Walter Reed Army Institute of Research, WRAMC, Washington, D.C.
MD-772 - Dr. Neal S. Bricker, Washington University, St. Louis,Mo.
(Terminated 30 November 1958)
MD-481 - Dr. Wm. A. Brodsky, University of Louisville, Ky.
MD-662 - Dr. Wm. W. Burr, Jr., Southwestern Medical School of Univ.of Texas,Da
MD-412 - Dr. Wm. B. Castle, Harvard University, Cambridge, Mass.
MD-781 - Dr. Thomas C. Chalmers, Harvard University, Cambridge, Mass.
MD-698 - Dr. Wm. E. Cornatzer, University of North Dakota, Grand Forks, N.D.
MD-437 - Dr. John D. Crawford, Harvard University, Cambridge, Mass.
(Terminated 30 September 1958)
MD-946 - Dr. R. S. Diaz-Rivera, University of Puerto Rico, San Juan, Puerto Ri
MD-134 - Dr. Frank L. Engle, Duke University, Durham, N.C.
MD-060 - Dr. Paul W. Havens, Jefferson Medical College, Philadelphia, Pa.
MD-592 - Dr. Frederick W. Hoffbauer, University of Minnesota, Minneapolis,Min

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Metabolism	U	6-60-09-012
	4.	5. REPORT DATE: 31 Dec.1958

MD-513 - Dr. Stanley M. Levenson, Medical College of Virginia, Richmond, Va.
MD-922 - Dr. Harvey Krieger, Western Reserve University, Cleveland, Ohio
MD-863 - Dr. G. Kenneth Mallory, Harvard University, Cambridge, Mass.
MD-790 - Dr. Hans Popper, Mt. Sinai Hospital, New York
MD-210 - Dr. Joseph Post, New York University-Bellevue Medical Center, N.Y. (Terminated 31 August 1958)
MD-479 - Dr. E. B. Pratt, University of Colorado, Denver, Colo.
MD-048 - Dr. John G. Reinhold, University of Pennsylvania, Philadelphia, Pa.
MD-021 - Dr. H. E. Sauberlich, Alabama Polytechnic Institute, Auburn, Ala.
MD-079 - Dr. Roy H. Turner, Tulane University, New Orleans, La.
MD-798 - Dr. Leroy D. Vandam, Harvard University, Cambridge, Mass.
MD-143 - Dr. Harry M. Vars, University of Pennsylvania, Philadelphia, Pa.
MD-080 - Dr. Cecil J. Watson, University of Minnesota, Minneapolis, Minn.
MD-451 - Dr. George H. Whipple, University of Rochester, Rochester, N.Y.

Development of Effective Methods of Correcting Metabolic Disorders

U. S. Army Tropical Medical Research Laboratory, San Juan, P.R.
Walter Reed Army Institute of Research, WRAMC, Washington, D.C.
MD-076 - Dr. Henry K. Beecher, Massachusetts General Hospital, Boston, Mass.
MD-748 - Dr. Chas. G. Child, III, Tufts University, Boston, Mass. (Terminated 31 December 1958)
MD-187 - Dr. Jerome W. Conn, University of Michigan, Ann Arbor, Michigan
MD-058 - Dr. Chas. S. Davidson, Harvard University, Cambridge, Mass.
MD-749 - Dr. George J. Gabuzda, Jr., Western Reserve University, Cleveland, Ohio
MD-928 & MD-637 Dr. Robert M. Kark, Presbyterian Hospital of the City of Chicago, Ill.
MD-922 - Dr. Donald P. Magee, University of Washington, Seattle, Washington (Terminated 30 November 1958)
MD-472 & MD-933 - Dr. Francis D. Moore, Harvard University, Cambridge, Mass.
MD-680 - Dr. Eric Reiss, Washington University, St. Louis, Mo.
MD-882 - Dr. Leon Schiff, University of Cincinnati, Cincinnati, Ohio
MD-572 - Dr. Henry Swan, University of Colorado, Denver, Colo.

e. Background History and Progress: (1) Background History: Metabolic abnormalities occurring in ill or injured soldiers are a military problem of prime importance. Studies under this project are referred to the Advisory Committee on Metabolism for advice, comments and recommendations. This committee is composed of eminent civilian scientists in the field of metabolism.

(2) Progress: It has been shown that a dynamic equilibrium exists between the metabolic pools of the body and the component tissues. There is a paucity of information available as to the extent to which these pools can be

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Metabolism	U	6-60-09-01
	4.	5. REPORT DATE 31 Dec.195

utilized. Attempts are being made to gain more knowledge and a better understanding of the mechanisms and nature of chemical changes, enzyme systems and physiological alterations occurring within the renal cells under normal and pathological conditions.

f. Future Plans: Investigations will be continued. From these studies it is hoped that a better understanding and a more effective therapeutic program can be developed for treating metabolic abnormalities of the soldier.

g. References: "See Research Task Summary."

h. Modernization Code: - Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Neuropsychiatry	U	6-60-10-016
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Neuropsychiatry & Neurology	PO-15

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research & Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 11 July 1955	59	384M
		60	400M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	400M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Since neuropsychiatric disorders in military personnel represent one of the most important and pressing medical problems in the Army today, an urgent requirement for this research exists. It is considered essential that techniques be developed to effectively reduce the large manpower losses resulting from neuropsychiatric casualties. Adequate methods for the identification of potential neuropsychiatric casualties as well as effective therapeutic measures that will restore the largest possible number of personnel to duty in the shortest period of time must be developed. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This project was initiated to identify the fundamental physiologic and psychodynamic factors which produce neuropsychiatric disorders. Subsequent to identification of the pertinent factors involved and of their interrelationships appropriate methods and techniques will be developed which will permit alteration and possible control of these factors.

b. Approach: An analysis has been made of a variety of diagnostic techniques and therapeutic procedures and of the underlying principles involved in their use. This approach has involved both laboratory experimentation with animals and clinical study of hospital patients. The causes of psychiatric

Grade (R & D)	SN.	CN.	C.	X.	I.	C.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT
Neuropsychiatry	U	6-60-1(
	4.	5. REPORT 31 Dec.

disorders in the military have been studied by use of sociometric technique psychiatric interviews, and by measurement of the behavioral changes accrui from the experimental manipulation of the interpersonal relationships invol

c. Tasks: "See Annual Research Task Summary." (Pages 91, 92, & 276

*Development of Methods for Prevention of Psychiatric Disorders

*Development of Methods for Diagnosis and Therapy of Psychiatric Disorders

*Identification of Neurophysiological Factors Related to Psychiatric Disorders

d. Other Information: (1) This project includes important scientif research. Number of research tasks - 3. Number of research contracts - 13

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items -

Agency	Project Number	Project Title
Air Force	7232	Research on Physics and Chemistry of Neurosensor Processes
"	9670	Research on Psychophysio of Information Processin
Navy	NM 42 00 00	Psychological Adjustment Personnel to Training an Operational Situations
"	NM 73 00 00	Studies on the Etiology, Symptoms, Diagnosis, and Treatment of Psychiatric Casualties

(6) Specific review points - Not applicable

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Neuropsychiatry	U	6-60-10-016
	4.	5. REPORT DATE 31 Dec.1958

(7) Item 12 - Contractor and/or Laboratory:

Task - Development of Methods for Prevention of Psychiatric Disorders

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-569 - Dr. Fred E. Fiedler, University of Illinois, Urbana, Ill.-
(Terminated 31 August 1958)
MD-754 - Dr. Edgar H. Schein, Massachusetts Institute of Technology, Cambridge,
MD-671 - Dr. Jack A. Vernon, Princeton University, Princeton, N.J.

Task - Development of Methods for Diagnosis and Therapy of Psychiatric Disorders

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-1004 - Dr. Murray Glanzer, University of Maryland, Baltimore, Md.
MD- 960 - Dr. David Marlowe, Washington School of Psychiatry, Washington, D.C.
MD- 746 - Dr. Wm. G. Reese, University of Arkansas, Little Rock, Ark.

Task - Identification of Neurophysiological Factors Related to Psychiatric Disorders

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD- 902 - Dr. Donald L. Burnham, Washington School of Psychiatry, Washington, D.C.
MD- 740 & 988 - Dr. David Nachmansohn, Columbia University, New York
(MD-740 Terminated 31 July 1958)
MD-1005 - Dr. Henricus G.J.M.Kuypers, University of Maryland, Baltimore, Md.
MD- 763 - Dr. Karl Pribram, Institute of Living, Hartford, Conn.
MD- 734 - Dr. C. Wesley Watson, New England Center Hospital, Boston, Mass.
MD-1006 - Dr. James W. Watts, George Washington University, Washington, D.C.

e. Background History and Progress: (1) Background History: These studies were initiated to conduct investigations and study data to determine the correlationship of many psychodynamic factors which produce neuropsychiatric disorders and the possible measures which might act as preventatives. By tracing the electro-physiological aspects of the nervous system and measuring simultaneously the correlative behavioral aspects, it will be possible to understand and eventually control some of the underlying factors in psychiatric disorders.

(2) Progress: The development of operant conditioning techniques has provided a new approach to the study of behavioral changes. The stabilization of animal behavior provides base lines for the screening of new pharmacological agents and other potential therapeutic techniques and instruments. Fundamental studies of the central nervous system mechanisms involved in emotional behavior

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJE
Neuropsychiatry	U	6-60-
	4.	5. REPOR 31 De

have continued to unfold the integrative functions of the reticular forma and limbic system of the brain.

f. Future Plans: Studies will continue to develop information rel to the factors underlying neuropsychiatric disorders and specifically tho are the result of the many stresses imposed on the soldier as a consequen his rigorous training and combat experience. Therapeutic measures approp the military situation must be developed. Further, studies will continue identify the causative mechanisms of the great manpower loss resulting fr neuropsychiatric casualties and to develop prophylactic, therapeutic, and rehabilitative measures for them.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Stress	U	6-60-10-017
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Internal Medicine	Neuropsychiatry & Neurology	PO-15

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service		
9. DIRECTING AGENCY: US Army Medical Research and Development Command	See Item 21d(7)	
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 11 July 1955	59	368M
		60	425M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	425M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Military life, especially during rigorous training and combat operations, imposes upon the soldier some of the most stressful situations known to occur in man. It is of the utmost importance, therefore, that methods be developed to determine as well as to measure the non-specific effects of stress that occur in soldiers and also, that methods be devised to modify or alter these effects in the direction of more useful and purposeful body economy. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This is a scientific project and detailed studies are conducted on the basic mechanisms of stress. Emphasis is placed on those aspects of the problem which have military importance such as anxiety, fear, exposure, fatigue, sleeplessness, malnutrition, disease, injury, shock, and hemorrhage. Attempts are made to develop and simplify diagnostic tests for measuring the effects of stress.

b. Approach: Studies are being carried on to obtain precise information by appropriate tests of the critical amounts of certain hormones, adrenal corticosteroids and other compounds occurring in the body as a result of stressful insult. Other studies are attempting to develop and simplify diagnostic tests

(R&D)	SN.	CN.	C.	X.	I.	C.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Stress	U	6-60-10-01
	4.	5. REPORT DATE 31 Dec. 19

for measuring the effects of stress. Investigations are also relating the principal physiological and environmental determinants of psychological stress to their behavioral concomitants.

c. Tasks: "See Annual Research Task Summary" (Pages 93, 107 & 222)

*Investigation of the Basic Physiological Mechanisms of Psychological Stress

*Identification of Biochemical and Endocrinological Factors Related t Psychiatric Disorders

*Stress

d. Other Information: (1) All the tasks of this project come under the category of significant scientific research. Number of research tasks - 3. Number of research contracts - 10.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Items -

Agency	Project Number	Title
Air Force	7220	Biophysics Research
Air Force	7756	Air Force Clinical Medicine
Air Force	7758	Aviation Physiology
Navy	NR 108-000	Biochemistry
Navy	NM 12 00 00	Stress Due to High Altitud
Navy	NM 11 00 00	Stress Due to Acceleration and Deceleration
Navy	NM 13 00 00	Stress Due to High Intensi to Noise

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Stress	U	6-60-10-017
	4.	5. REPORT DATE 31 Dec. 1958

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

Task - Investigation of the Basic Physiological Mechanisms of Psychological Stress

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.

Task - Identification of Biochemical and Endocrinological Factors Related to Psychiatric Disorders

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.

Task - Stress

Fitzsimons Army Hospital, Denver, Colorado
Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-184 - Dr. Ralph I. Dorfman, Worcester Foundation for Experimental Biology, Shrewsbury, Mass. (Terminated 31 October 1958)
MD-130 - Dr. Thomas F. Dougherty, University of Utah, Salt Lake City, Utah
MD-438 - Dr. Fred Elmadjian, Worcester Foundation for Experimental Biology, Shrewsbury, Mass.
MD-213 - Dr. Henry M. Fox, Harvard University, Cambridge, Mass.
MD-341 - Dr. Thomas F. Gallagher, Sloan-Kettering Institute for Cancer Research, New York, N. Y.
MD-496 - Dr. James D. Hardy, University of Pennsylvania, Philadelphia, Pa. (Terminated 31 August 1958)
MD-624 - Dr. Eugene M. Landis, Harvard University, Boston, Mass.
MD-186 - Dr. Hans Selye, University of Montreal, Montreal, Canada (Terminated 31 July 1958)
MD-990 - Dr. George Sayers, Western Reserve University, Cleveland, Ohio
MD-135 - Dr. George W. Thorn, Harvard University, Cambridge, Mass.

e. Background History and Progress: (1) Background History: These studies were initiated to obtain information for comparative experimental analysis of behavior under stress. Efforts are made to determine and provide a constructive means to modify effects of stress. Considerable effort has also been made to understand the body's reaction to stressful situations and to attempt to prevent, if possible, or treat, if necessary, the stressed soldier and prepare him to survive.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Stress	U	6-60-10-0
	4.	5. REPORT DATE
		31 Dec. 19

(2) Progress: Studies involving the experimental production of ulc in monkeys indicate that the relative duration and spacing of rest periods ma the critical factors in situations of prolonged stress. Evidence is available that the temporal patterning of stress and rest periods may be a significant determinant in the development of peptic ulceration. The behavioral aspects deteriorated under prolonged periods of wakefulness (vigilance-type tasks) an the many behavioral aspects which showed no changes under conditions of sleep loss were demonstrated under controlled laboratory conditions.

f. Future Plans: Research will continue to obtain a greater knowledge and understanding of the stress forces of the combat soldier and to develop methods of preventing and/or treating the stress effects from a wide variety military situations.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

DD, FORM 613-1
REPLACES DD FORM 613-1.
1 FEB 53.

PAGE 4 OF

R & D PROJECT CARD

TYPE OF REPORT: Progress

REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE: Nutrition	2. SECURITY OF PROJECT: U	3. PROJECT NO.: 6-60-11-020	
	4. INDEX NUMBER:	5. REPORT DATE: 31 Dec. 1958	
6. BASIC FIELD OR SUBJECT: Medical Sciences	7. SUB FIELD OR SUBJECT SUB GROUP: Nutrition	7A. TECH. OBJ.: PC-16	
8. COGNIZANT AGENCY: Army Medical Service	12. CONTRACTOR AND/OR LABORATORY: See Item 21d(7)	CONTRACT/W. O. NO.:	
9. DIRECTING AGENCY: US Army Medical Research and Development Command			
10. REQUESTING AGENCY:			
11. PARTICIPATION AND/OR COORDINATION: QMG (P&C), Air Force (C), Navy (C)	13. RELATED PROJECTS:	17. EST. COMPLETION DATES: RES.: / DEV.: / TEST: / OP. EVAL.:	
	14. DATE APPROVED: 11 July 1955		
	15. PRIORITY: 1C	16. MAJOR CATEGORY: 7.23	
19. REPLACED PROJECT CARD AND PROJECT STATUS:			

18. FY.	FISCAL ESTIMATES
59	671M
60	675M
T	675M

20. REQUIREMENT AND/OR JUSTIFICATION

Adequate nutrition is a prime necessity in maintaining the health, efficiency and morale of the soldier, especially in combat or under adverse environmental conditions as well as in severe illnesses and injuries. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The purpose of this project is to assure the adequacy of the soldier's diet under all conditions that he may be expected to efficiently perform; to determine the nutritional factors involved in hepatic injury and other diseases believed to be of malnutritional origin; and to provide suitable fat emulsions for intravenous supplemental alimentation to seriously ill or injured patients unable to maintain proper caloric intake by mouth.

b. Approach: To study the soldier's caloric vitamin and mineral requirements in health and disease under all conditions that he may be expected to operate and to determine the safe dosage for intravenously administering fat

DD (R & D)	SN.	CN.	C.	X.	I.	C.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Nutrition	U	6-60-11-02
	4.	5. REPORT DATE 31 Dec. 19

emulsions when such therapy is indicated.

c. Tasks: "See Annual Research Task Summary" (Pages 108 & 109)

*Intravenous Fat Emulsions

*Minimum Nutritional Requirements

d. Other Information: (1) This project consists entirely of scientific research tasks, some of which include further refinement of an item. Number of research tasks - 2. Number of research contracts - 18.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Items -

Agency	Project Number	Title
QMG	7-84-01-002	Radiation Preservation of F
QMG	7-83-01-004	Operational Effectiveness o the QM-Equipped Soldier

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

Task - Intravenous Fat Emulsions

U. S. Army Medical Research & Nutrition Laboratory, Denver, Colo.
Department of Agriculture, Agricultural Research Service, New Orleans, La.
MD-930 - Dr. Curtis P. Artz, University of Mississippi, Jackson, Miss.
MD-659 - Dr. Gerald H. Becker, Michael Reese Hospital, Chicago, Ill.
MD-879 - Dr. Isidore Cohn, Jr., Louisiana State University, New Orleans, La.
MD-917 - Dr. Paul H. Jordon, University of California, Los Angeles, Calif.
MD-913 - Dr. Fred Kern, Jr., University of Colorado, Denver, Colo.
MD-915 - Dr. Laurance W. Kinsell, Highland-Alameda County Hospital, Oakland,
MD-1011 - Dr. Walter F. Lever, Harvard University, Boston, Mass.
MD-252 - Dr. H. C. Meng, Vanderbilt University, Nashville, Tenn.
(formerly Dr. John B. Youmans)
MD-905 - Dr. Hugo C. Moeller, University of California, San Francisco, Cali

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Nutrition	U	6-60-11-020
	4.	5. REPORT DATE 31 Dec. 1958

MD-800 - Dr. John F. Mueller, University of Cincinnati, Cincinnati, Ohio
MD-924 - Dr. Robert E. Shank, Washington University, St. Louis, Mo.
MD-049 - Dr. Fredrick J. Stare, Harvard University, Cambridge, Mass.
MD-925 - Dr. Albert S. Stunkard, University of Pennsylvania, Philadelphia, Pa.
MD-548 - Dr. Norman F. Witt, University of Colorado, Boulder, Colo.
(Terminated 31 August 1958)
MD-931 - Dr. D. B. Zilversmit, University of Tennessee, Memphis, Tenn.

Task - Minimum Nutritional Requirements

U. S. Army Medical Research & Nutrition Laboratory, Denver, Colo.
MD-078 - Dr. Paul Gyorgy, University of Pennsylvania, Philadelphia, Pa.
(Terminated 30 November 1958)
MD-524 - Dr. Harold G. Wolff, Cornell University, New York, N. Y.
QM Contract - Dr. Ancel Keys, University of Minnesota, Minneapolis, Minn.
(Terminated 31 May 1958)

e. Background History and Progress: (1) Background History: This project was initiated to assure the adequacy of the soldier's diet under all environmental conditions under which he may be expected to operate and to provide suitable fat emulsions for intravenous administration to seriously ill or injured patients unable to maintain proper caloric intake by mouth. Studies are referred to the Advisory Committee on Nutrition for advice, comment and recommendations. This committee is composed of eminent civilian scientists in the field of nutrition.

(2) Progress: A suitable fat emulsion has been developed for intravenous administration which does not provoke serious untoward reactions in the patient for short periods of time. Efforts are progressing in perfecting an emulsion complete in all essential nutrients and with adequate calories suitable for long term intravenous use. Also, it has been determined that the soldier in the arctic requires no more food than the soldier in the temperate climate.

f. Future Plans: Nutritional investigations will continue. New efforts are being made to develop a non-phosphatide and/or "synthetic fat" emulsion. The role of fat in the diet and its relationship to the degenerative vascular diseases presents many challenging problems.

g. References: "See Annual Research Task Summary"

h. Modernization Code - Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
New Drugs and Antibiotics	U	6-60-13-016
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Therapeutics	PO-14

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 21 May 1951	59	53M
		60	45M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	45M
19. REPLACED PROJECT CARD AND PROJECT STATUS			

20. REQUIREMENT AND/OR JUSTIFICATION

To evaluate new drugs and antibiotics in the treatment of diseases and infections. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This is a scientific project and the studies are conducted to clinically and experimentally test and evaluate new drugs and antibiotics in the prophylaxis and treatment of various diseases and infections.

b. Approach: Studies are being made to determine treatment and control of (1) mycotic and bacterial diseases, (2) parasitic diseases, (3) mode of action of antimicrobial agents, and (4) analytical determination of drugs and compounds of toxicological importance.

(R & D)	SN.	CN.	C.	X.	I.	C.

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OBSOLETES DD FORM 613.

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R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
New Drugs and Antibiotics	U	6-60-13-016
	4.	5. REPORT DATE 31 Dec. 195

c. Task: "See Annual Research Task Summary" (Page 110)

*New Drugs and Antibiotics

d. Other Information: (1) This project includes important scientific research. Number of research tasks - 1. Number of research contracts - 0.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Items -

Agency	Project Number	Title
Air Force	7756	Air Force Clinical Medicine
Navy	NM 72 00 00	Studies Including Etiology, Diagnosis, Pathology and Treatment in General Military Medicine

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

U. S. Army Surgical Research Unit, BAMC, Ft. Sam Houston, Texas
Walter Reed Army Institute of Research, WRAMC, Washington, D. C.

e. Background History and Progress: (1) Background History: A large number of new drugs and antibiotics are constantly being developed and offered to the medical profession in the treatment of many diseases and injuries. Often these drugs and therapeutic agents are enthusiastically endorsed and acclaimed as "cure-alls", however, careful clinical testing, in many instances, discloses unfavorable reactions and evidence that fails to substantiate the previous enthusiastic endorsement. This project was initiated to evaluate experimentally and clinically new drugs and antibiotics in the prophylaxis and treat of various diseases and infections.

(2) Progress: Studies on antifungal antibiotics have shown that ora administration of Amphotericin B is effective in experimental coccidiomycosis

PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
	U	6-60-13-016
New Drugs and Antibiotics	4.	5. REPORT DATE
		31 Dec. 1958

in mice, with oral re-evaluation in man. Studies have been initiated with six new agents showing antifungal activity. An ultraviolet spectrophotometric procedure was developed for quantitative determination of meperidine in connection with a toxicology case, for blood dilantin. Spectra of 25 different compounds have been determined for ready identification of materials in biological materials.

f. Future Plans: Studies will continue on the evaluation of new drugs and antibiotics as they become available.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Internal Medicine	U	6-60-13-017
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Therapeutics	PO-16

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service		
9. DIRECTING AGENCY: US Army Medical Research and Development Command	See Item 21d(7)	
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 12 July 1954	59	520M
		60	520M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	520M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

There is a requirement to investigate and to develop methods for the prevention and treatment of a wide array of diseases observed in soldiers, such as, gastro-intestinal disorders, liver and renal complications following infectious diseases, tuberculosis, and diseases of the skin. (Par 1412e CDOC)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: To investigate and evaluate the causes of secondary or complicating conditions occurring in infectious diseases and disorders and to develop improved methods for the prevention and treatment of skin diseases.

b. Approach: A wide array of diseases observed in the military, such as gastro-intestinal disorders, liver and renal complications as well as circulatory and metabolic derangements are being investigated. Efforts are being made to determine the type and number of isoniacid resistant mutants of the tubercule bacilli, as well as the serum and body fluid concentrations of antituberculosis drugs necessary to destroy the causative organisms. Studies are being made of

GASD (R & D)	SN.	CN.	C.	X.	I.	C.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Internal Medicine	U	6-60-13-01
	4.	5. REPORT DATE 31 Dec. 19

the metabolic pathways concerned in skin disorders and to evaluate the effectiveness of medications in the prevention and treatment of skin disorders.

c. Tasks: "See Annual Research Task Summary" (Pages 111, 112, 113 & 12

*Gastrointestinal, Cardiac and Renal Complications of Infectious Diseases

*Basic Mechanisms Involved in Chronic Skin Diseases

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 2. Number of research contracts - 13.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Item - Not applicable

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

Task - Gastrointestinal, Cardiac and Renal Complications of Infectious Diseases

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
USAF Antilles Command
National Bureau of Standards (Terminated 30 June 1958)
U. S. Army Medical Research and Nutrition Laboratory, Denver, Colo.
U. S. Army Tropical Medical Research Laboratory, San Juan, P. R.
MD-874 - Dr. H. Vasken Aposhian, Vanderbilt University, Nashville, Tenn.
MD-601 - Dr. Julius M. Coon, Jefferson Medical College, Philadelphia, Pa. (Terminated 31 December 1958)
MD-676 - Dr. Bernard M. Wagner, The Children's Hospital, Philadelphia, Pa. (Terminated 31 October 1958)
MD-929 - Dr. Paul W. Boyles, University of Miami, Miami, Florida

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Internal Medicine	U	6-60-13-017
	4.	5. REPORT DATE: 31 Dec. 1958

Task - Basic Mechanisms Involved in Chronic Skin Diseases

MD-731 - Dr. Harvey Blank, University of Miami, Miami, Fla.
MD-977 - Dr. Richard L. Dobson, University of North Carolina, Chapel Hill, N. C.
MD-584 - Dr. Herman Pinkus, Wayne State University, Detroit, Mich.
MD-411 - Dr. Stephen Rothman, University of Chicago, Chicago, Ill.
MD-153 - Dr. Maurice Sullivan, Johns Hopkins University, Baltimore, Md. (Terminated 31 August 1958)
MD-753 - Dr. Marion B. Sulzberger, New York University-Bellevue Medical Center, New York, N. Y.
MD-695 - Dr. Herman N. Eisen, Washington University, St. Louis, Mo.
MD-154 - Dr. Donald M. Pillsbury, University of Pennsylvania, Philadelphia, Pa.
MD-694 - Dr. Thomas H. Sternberg, University of California, Los Angeles, Calif.

e. Background History and Progress: (1) Background History: These

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Accidental Trauma	U	6-61-01-004
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Investigation, Authorized	PO-12

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service		
9. DIRECTING AGENCY: US Army Medical Research and Development Command	See Item 21d(7)	
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
AFEB (P&C) Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 9 July 1951	59	246M
		60	160M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	160M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Accidental trauma in the services is the major cause of man days lost. This study is aimed at eliminating factors which cause accidents wherever possible. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This is a scientific project to evaluate the relative importance of various causes of injury to military personnel, and to develop and test appropriate methods of reducing injuries and time loss from these causes. At the present time, the most important single cause of accidental injury is motor vehicle accidents.

b. Approach: Three separate approaches are in progress: (1) Study of the mechanical factors in automotive design responsible for accidents and injury; (2) space-time distribution of accidents around representative military posts; and the psychological peculiarities of drivers who have frequent accidents.

0460 (R & D)	SN.	CN.	C.	X.	I.	C.

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R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Accidental Trauma	U	6-61-01-004
	4.	5. REPORT DATE 31 Dec. 1958

c. Tasks: "See Annual Research Task Summary" (Page 123)

*Factors in Vehicle and Highway Design Responsible for Accidents, Injury and Death

*Personal and Interpersonal Causes for Accidents

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 2. Number of research contracts - 8.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Items -

Agency	Project Number	Title
Air Force	6361	Development of Survival Equipment
Air Force	7758	Aviation Physiology
Navy	NM 15 00 00	Aviation Safety, Escape and Rescue

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

Task - Factors in Vehicle and Highway Design Responsible for Accident Injury and Death

William Beaumont Army Hospital, El Paso, Texas
MD-166 - Dr. Ross A McFarland, Harvard University, Cambridge, Mass.
MD-483 - Dr. Walsh McDermott, Cornell University, New York, N. Y. (Terminated 31 July 1958)
MD-992 - Dr. John O. Moore, Cornell University, New York, N. Y.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Accidental Trauma	U	6-61-01-004
	4.	5. REPORT DATE 31 Dec. 1958

Task - Personal and Interpersonal Causes for Accidents

MD-876 & MD-997 - Dr. Jack W. Dunlap, Dunlap & Associates, Inc., Stanford, Conn. (MD-876 Terminated 30 June 1958)
MD-502 - Dr. Herbert S. Gaskill, University of Colorado, Denver, Colo.
MD-887 - Dr. W. A. Tillmann, St. Joseph's Hospital, London, Ontario, Canada.
CAA Project No. 53-209 - Dr. Peter J. Sutro, Civil Aeronautics Medical Research Laboratory, Columbus, Ohio (Terminated 30 June 1958)

e. Background History and Progress: (1) Background History: Accidental trauma is a major cause of death and injury in both civilian and military personnel. The largest proportion results from land operated motorized equipment, frequently when the driving personnel are in an off-duty status. A review of accidental trauma in the services reveals that a very serious problem exists. Accidents ranked first of the ten leading causes of man days lost in the U. S. Navy during the past five years. Similar trends have been reported by the Army and Air Force. Current statistics indicate that even in combat areas, accidents account for about one-half of the hospitalized casualties; this was true of the Korean campaign, with approximately 70% of the accidents being vehicular in nature. Research has been directed chiefly toward automotive accidents, however, both industrial accidents in military arsenals and aircraft accidents are also receiving attention.

(2) Progress: As a result of these studies it has been shown that the younger males, age 22 or less, both military and civilian are being involved in a disproportionately larger number of automobile accidents. It has also been determined that automobile seat belts and improved door locks can prevent a large number of serious injuries resulting from automobile accidents.

f. Future Plans: Studies will be continued. Information derived from these studies will aid in better utilization and direction of accident prevention programs.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Germ-Free Animal Studies	U	6-61-01-006
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. ~~OBJ~~
Preventive Medicine	Investigation, Authorized	~~PO-14~~

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service		
9. DIRECTING AGENCY: US Army Medical Research and Development Command	See Item 21d(7)	
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES
ONR (P&C) DHEW (C) Air Force (C)		RES. DEV. TEST OP. EVAL.

14. DATE APPROVED	15. PRIORITY	16. MAJOR CATEGORY
12 July 1954	1C	7.23

18. FY.	FISCAL ESTIMATES
59	95M
60	125M
T	125M

18. REPLACED PROJECT CARD AND PROJECT STATUS

19. REQUIREMENT AND/OR JUSTIFICATION

"Germ-free" animals are a unique tool and their usefulness in medical research needs to be thoroughly explored. (Par 1412c CDOG)

20. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This is a scientific project with an objective to raise germ-free animals. Work on this project includes the application of germ-free experimental techniques to current problems in the areas of communicable diseases, acute respiratory diseases, immunology, nutrition, surgical shock, and related areas.

b. Approach: These studies involve the comparison of events in two groups of animals; one, germ-free and the other, conventional laboratory stock. Studies are being made to evaluate the potential value of germ-free animal techniques and equipment in the investigations of infectious diseases, metabolism and traumatic shock.

0469 (R & D)	SN.	CN.	C.	X.	I.	C.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Germ-free Animal Studies	4.	3-01-01-006
		5. REPORT DATE 31 Dec. 1958

c. Task: "See Annual Research Task Summary" (Page 63)

Application of Germ-free Animal Techniques

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 1. Number of research contracts - 3.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Item -

Agency	Project Number	Title
Navy	NR 103-000	Protection Against and Utilization of Microbial Activity

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-463 - Dr. Paul Gyorgy, University of Pennsylvania, Philadelphia, Pa. (Terminated 31 May 1958)
MD-878 - Dr. Philip C. Trexler, University of Notre Dame, Notre Dame, Ind.
Navy Contract - Dr. J. A. Reyniers, University of Notre Dame, Notre Dame, Ind.

e. Background History and Progress: (1) Background History: Since the "germ-free" animal can serve as a very valuable tool in military medical research, it was deemed essential that facilities be acquired and maintained for the production and use of such animals.

(2) Progress: Significant anatomic and physiologic differences have been found between germ-free reared and the conventional laboratory animals. The improvement and simplification of germ-free holding and rearing tanks have made possible extension of germ-free research. The inclusion in experiments of these animals in addition to the conventional animals will assist in the determination of the role played by infection in traumatic shock, in radiation injury and in many disorders of the endocrine glands.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Germ-free Animal Studies	U	6-61-01-006
	4.	5. REPORT DATE: 31 Dec. 1958

f. Future Plans: Research will continue utilizing the germ-free animal technique and equipment in investigations of infectious diseases, metabolism and traumatic shock.

g. References: "See Annual Research Task Summary"

Reyniers, James A. and Sacksteder, Miriam R.: Annals of N. Y. Acad. of Science, Vol. 73, 5 Sept 1958, pp. 344-356.

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Communicable Diseases	U	6-61-03-035
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Preventive Medicine	Communicable Disease	PO-14

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES
AFEB (C) Navy (C&P) Air Force (C&P) DHEW (C&P)		RES. DEV. TEST OP. EVAL.

14. DATE APPROVED	15. PRIORITY	16. MAJOR CATEGORY
1 August 1955	1 C	7.23

18. FY.	FISCAL ESTIMATES
59	1,115M
60	1,155M
T	1,155M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Diseases caused by infectious agents are a continuing cause of man-days lost. Many are poorly understood and this is particularly true in many areas of the world to which military forces may be deployed, a recent example being hemorrhagic fever in Korea. It is therefore essential that continuing research be maintained in this field to improve knowledge of etiology, epidemiology, prevention and treatment, and to maintain a pool of the scientific skills, facilities, and training potential. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This is a scientific project and the object is to conduct studies in the field, clinic, hospital and laboratory of diseases caused by infectious agents, under broad programs for specific groups of such agents, to improve knowledge of their epidemiology, etiology, control, prevention and treatment.

b. Approach: Studies are conducted by both epidemiologic investigation and laboratory analysis of viral, rickettsial, enteric, parasitic, and other infectious diseases. Present efforts are being made to evaluate and determine the biochemical and metabolic pathways of various drugs being utilized in the treatment of these infectious diseases.

OASD (R & D)	SN.	CN.	C.	X.	I.	C.

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REPLACES DD FORM 613, JAN 52.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Communicable Diseases	U	6-61-03-035
	4.	5. REPORT DATE 31 Dec. 1958

c. Tasks: "See Annual Research Task Summary" (Pages 114; 124 -127 Incl.)

*Epidemiology Parasitic and Enteric Infections in Man

*Epidemiology of Viral and Rickettsial Infections

*Chemotherapy of Malaria

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 3. Number of research contracts - 48.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Items -

Agency	Project Number	Title
Navy	NM 52 00 00	Investigation of Epidemiolog Etiology, Pathology, Diagnos and Prevention of Communicab Disease
Navy	NR 103-000	Protection Against and Utilization of Microbial Activity
Air Force	7753	Air Force Preventive Medici
DHEW	108-T-29	Studies on the Bionomics an Control of Schistosomiasis and its Host Snail

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

Task - Epidemiology of Parasitic and Enteric Infections in Man

Armed Forces Institute of Pathology, Washington, D. C.
Fourth Army Area Medical Laboratory, Ft. Sam Houston, Texas

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Communicable Diseases	U	6-61-03-035
	4.	5. REPORT DATE: 31 Dec. 1958

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
U. S. Army Tropical Research Medical Laboratory, San Juan, P. R.
MD-711 - Dr. Edgar E. Baker, Boston University, Boston, Mass.
MD-515 - Dr. William Balamuth, University of California, Berkeley, Calif.
MD-633 - Dr. Paul C. Beaver, Tulane University, New Orleans, La.
MD-975 - Dr. Ernest Bueding, Louisiana State University & Agr. & Mech. College, New Orleans, La.
MD-547 - Dr. Francis S. Cheever, University of Pittsburgh, Pittsburgh, Pa.
MD-603 - Dr. Gustave J. Dammin, Harvard University, Cambridge, Mass.
MD-692 - Dr. Nathan Entner, New York University, New York, N. Y.
MD-756 - Dr. W. W. Frye, Louisiana State University & Agr. & Mech. College, New Orleans, La.
MD-864 - Dr. Paul Fremont-Smith, Harvard University, Cambridge, Mass.
MD-926 - Dr. L. Galindo, University of Puerto Rico, San Juan, P. R.
MD-639 - Dr. Quentin M. Geiman, Leland Stanford University, Stanford, Calif.
MD-965 - Dr. Horace M. Gezon, University of Pittsburgh, Pittsburgh, Pa.
MD-1003 - Dr. Warren Hoffert, Florida State Board of Health, Miami, Fla.
MD-516 - Dr. Robert M. Lewert, University of Chicago, Chicago, Ill.
MD-688 - Dr. Jose F. Maldonado, University of Puerto Rico, San Juan P. R.
MD-595 - Dr. J. Wister Meigs, Yale University, New Haven, Conn.
MD-964 - Dr. Harry Most, New York University-Bellevue Medical Center, New York, N. Y.
MD-891 - Dr. Mitsura Nakamura, Montana State University, Missoula, Mont.
MD-321 - Dr. J. C. Olson, University of Minnesota, Minneapolis, Minn. (Terminated 31 July 1958)
MD-923 - Dr. William F. Scherer, University of Minnesota, Minneapolis, Minn.
MD-771 - Dr. Morris F. Shaffer, Tulane University, New Orleans, La.
MD-280 - Dr. Walter D. Tiedeman, University of Michigan, Ann Arbor, Mich.
MD-604 - Dr. Henry van der Schalie, University of Michigan, Ann Arbor, Mich.
MD-896 - Dr. Ralph H. Weaver, University of Kentucky, Lexington, Ky. (Terminated 30 September 1958)
MD-530 - Dr. Thomas H. Weller, Harvard University, Cambridge, Mass.

Task - Epidemiology of Viral and Rickettsial Infections in Man

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
U. S. Army Medical General Laboratory, Japan
U. S. Army Tropical Research Medical Laboratory, San Juan, P. R.
MD-175 - Dr. Frederik B. Bang, Johns Hopkins University, Baltimore, Md.
MD-538 - Dr. Rodney R. Beard, Leland Stanford University, Stanford, Calif.
MD-649 - Dr. R. S. Diaz-Rivera, University of Puerto Rico, San Juan, P. R.
MD-474 - Dr. John F. Enders, The Children's Hospital, Boston, Mass.
MD-705 - Dr. Irving Gordon, University of Southern California, Los Angeles, Calif.
MD-029 - Dr. McD. Hammon, University of Pittsburgh, Pittsburgh, Pa.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Communicable Diseases	U	6-61-03-0
	4.	5. REPORT DATE 31 Dec. 1

MD-022 - Dr. Albert V. Hardy, Florida State Board of Health, Jacksonville, Fl.
MD-062 - Dr. Paul Havens, Jefferson Medical College, Philadelphia, Pa.
MD-071 & MD-1009 - Dr. Werner Henle, Children's Hospital, Philadelphia, Pa. (MD-71 Terminated 30 September 1958)
MD-281 - Dr. Marshall Hertig, Gorgas Memorial Institute of Tropical Medicine Preventive Medicine, Inc., Washington, D. C.

MD-477 - Dr. Saul Krugman, New York University-Bellevue Medical Center, New York, N. Y. (formerly Dr. Robert Ward)
MD-972 - Dr. Gerald A. Lo Grippo, Henry Ford Hospital, Detroit, Mich.
Navy Contract - Dr. J. M. May, American Geographical Society, New York, N. Y.
MD-243 - Dr. George S. Mirick, Johns Hopkins University, Baltimore, Md.
MD-050 - Dr. Robert F. Norris, University of Pennsylvania, Philadelphia, Pa. (Terminated 30 June 1958)
MD-065 - Dr. John R. Paul, Yale University, New Haven, Conn.
MD-691 - Dr. Winston Price, Johns Hopkins University, Baltimore, Md. (Terminated 31 August 1958)
MD-777 - Dr. J. J. Quilligan, Jr., College of Medical Evangelists, Los Angele Calif.
MD-059 - Dr. Albert B. Sabin, Children's Hospital, Cincinnati, Ohio (Terminated 30 September 1958)
MD-307 - Dr. Edward D. Wagner, College of Medical Evangelists, Los Angeles, Calif. (Terminated 30 September 1958)
MD-751 - Dr. T. E. Woodward, University of Maryland, Baltimore, Md.

Task - Chemotherapy of Malaria

MD-566 - Dr. Alf S. Alving, University of Chicago, Chicago, Ill.

e. Background History and Progress: (1) Background History: These studi were initiated to conduct research on viral, rickettsial, enteric, parasitic a infectious diseases of military importance which are a hazard to troops operating in all areas of the world. These investigations provide information and data on which to base effective means of control for prevention and treatment in reducing military noneffectiveness.

(2) Progress: Research conducted at the Willowbrook State School has assembled impressive evidence that the administration of one dose of gamma globulin can significantly lower the incidence rate of infectious hepatitis. This can be interpreted as the result of passive-active immunity.

Field and laboratory studies of several disease outbreaks in the Philippi Thailand and India have provided information of extreme importance should it b necessary to employ our troops in these areas. These diseases are known

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Communicable Diseases	U	6-61-03-035
	4.	5. REPORT DATE 31 Dec. 1958

presently as Philippine and Bangkok hemorrhagic fevers and Kyasanur Forest disease.

The first drug having definite curative effects against malaria has been tested on a clinical basis and has been adopted by the military as the treatment of choice.

f. Future Plans: Research will be continued to study the cause, epidemiology and control of diseases of military significance.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSGRD-18

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Acute Respiratory Diseases	U	6-61-03-036
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Communicable Diseases	PO-14

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service		
9. DIRECTING AGENCY: US Army Medical Research and Development Command	See Item 21d(7)	
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C&P) Air Force (C&P) AFEB (C) DHEW (C&P)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 1 August 1955	59	875M
		60	875M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	875M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Acute respiratory diseases are a continuing major cause of man-days lost. It is essential that aggressive research in this field be conducted to exploit new leads which may provide better control and preventive methods. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: To conduct studies in the field, clinics, hospitals, and laboratories of acute respiratory diseases to improve our knowledge of their epidemiology, etiology, control, prevention and treatment.

b. Approach: Research studies are being carried on by both experimental studies, frequently utilizing human volunteers, and epidemiologic investigation and laboratory analysis on outbreaks of influenza, acute respiratory, and streptococcal diseases in military and other personnel. Information and data are being collected and studied on the mechanisms leading to the development of the immune state in man and animals.

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R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Acute Respiratory Diseases	4.	5. REPORT DATE 31 Dec. 1958

c. Tasks: "See Annual Research Task Summary" (Pages [illegible] - 139 Incl)

*Epidemiology of Adenovirus Infections and other Respiratory Diseases

*Epidemiology of Influenza

*Epidemiology of Streptococcal Disease

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 3. Number of research contracts - 39.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Items -

Agency	Project Number	Title
Air Force	7753	Air Force Preventive Medicin
Air Force	7756	Air Force Clinical Medicine
Navy	NM 52 00 00	Investigation of Epidemiolo Etiology, Pathology, Diagno and Prevention of Communicab Disease
Navy	NM 72 00 00	Studies including Etiology, Diagnosis, Pathology, and Treatment in General Milita Medicine
Navy	NR 103-000	Protection Against and Utilization of Microbial Activity
DHEW	E-12770l	Respiratory Tract Virus an Infectious Mononucleosis

(6) Specific Review Points - Not applicable

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Acute Respiratory Diseases	U	6-61-03-036
	4.	5. REPORT DATE 31 Dec. 1958

(7) Item 12 - Contractor and/or Laboratory -

Task - Epidemiology of Adenovirus Infections and Other Respiratory Diseases

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-066 & MD-656 - Dr. John H. Dingle, Western Reserve University, Cleveland, Ohio (MD-656 - Terminated 31 June 1958)
MD-340 - Dr. Carl G. Harford, Washington University, St. Louis, Mo.
MD-661 & MD-984 - Dr. Harold B. Houser, Western Reserve University, Cleveland, Ohio (MD-661 - Terminated 31 July 1958)
MD-1000 - Dr. William S. Jordan, Jr., University of Virginia, Charlottesville, Va.
MD-638 - Dr. Karl F. Meyer, University of California, Berkeley, Calif.
MD-885 - Dr. Harry M. Rose, Columbia University, New York, N. Y.
MD-005 & MD-1012 - Dr. Charles E. Smith, University of California, Berkeley, Calif. (MD-005 - Terminated 31 October 1958)
MD-742 - Dr. Chandler A. Stetson, New York University-Bellevue Medical Center, New York, N. Y. (Terminated 31 July 1958)
MD-745 - Dr. Ralph J. Wedgwood, Western Reserve University, Cleveland, Ohio

Task - Epidemiology of Influenza

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-727 - Dr. Fred M. Davenport, University of Michigan, Ann Arbor, Mich.
MD-421 - Dr. Harry F. Dowling, University of Illinois, Chicago, Ill.
MD-067 & MD-914 - Dr. Thomas Francis, Jr., University of Michigan, Ann Arbor, Mich.
MD-703 - Dr. Edwin D. Kilbourne, Cornell University, Ithaca, N. Y.
W-MD-464, MD-898 & MD-950 - Dr. Edwin H. Lennette, Calif. State Department of Public Health, Berkeley, Calif. (W-MD-464 - Terminated 30 June 1958, MD-898 - Cancelled 10 February 1958)
MD-212 - Dr. Dorothy Hamre, University of Chicago, Chicago, Ill. (formerly Dr. Clayton G. Loosli)
MD-974 - Dr. Thomas P. Magill, State University of New York, Brooklyn, N. Y.
MD-061 - Dr. Albert P. McKee, State University of Iowa, Iowa City, Iowa (Terminated 30 April 1958)
MD-224 - Dr. Gordon Meiklejohn, University of Colorado, Denver, Colo.
MD-704 - Dr. William J. Mogabgab, Tulane University, New Orleans, La.
MD-473 - Dr. A. F. Rasmussen, Jr., University of California, Los Angeles, Calif. (Terminated 28 February 1958)
MD-875 - Dr. Julius S. Youngner, University of Pittsburgh, Pittsburgh, Pa.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Acute Respiratory Diseases	U	6-61-03-036
	4.	5. REPORT DATE 31 Dec. 1958

Task - Epidemiology of Streptococcal Disease

U. S. Army, Europe
U. S. Public Health Service, Washington, D. C.
Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-978 - Dr. Leighton E. Cluff, Johns Hopkins University, Baltimore, Md.
MD-982 - Dr. Richard D. Ekstedt, Northwestern University, Chicago, Ill.
MD-173 - Dr. A. E. Feller, University of Virginia, Charlottesville, Va.
MD-562 - Dr. James A. Hayashi, University of Illinois, Chicago, Ill. (formerly Dr. Sam S. Barkulis)
MD-757 - Dr. Colin M. MacLeod, University of Pennsylvania, Philadelphia, Pa.
MD-696 - Dr. O. J. Plescia, Rutgers University, New Brunswick, N. J. (formerly Dr. Michael Heidelberger)
MD-380 - Dr. Charles H. Rammelkamp, Western Reserve University, Cleveland, Ohio
MD-966 - Dr. Gene H. Stollerman, Northwestern University, Chicago, Ill.
MD-590 - Dr. Lewis Thomas, New York University-Bellevue Medical Center, New York, N. Y.
MD-585 - Dr. William S. Tillett, New York University-Bellevue Medical Center, New York, N. Y.
MD-971 & MD-972 - Dr. Lewis Wannamaker, University of Minnesota, Minneapolis, Minn.

e. Background History and Progress: (1) Background History: Research studies were initiated and have been underway for the past 15 years to find methods of immunization and control of the occasional outbreaks of influenza in the military causing a considerable number of hospitalized patients. These studies have led to an understanding of the pronounced tendency of the influenza virus to undergo antigenic change from year to year, requiring changes in vaccine composition. During periods of mobilization streptococcal disease spreads characteristically by close personal contact and is a major problem. Occasionally during peacetime training this disease appears in epidemic form in training centers. During the past 15 years effective, although laborious, methods of chemoprophylaxis have been developed and tested, first with the sulfonamides and later with the more effective penicillin. During the past several years a hitherto unrecognized cause of acute respiratory disease, the adenoviruses, has been isolated and identified.

(2) Progress: A recent study has uncovered a phenomenon that is considered of great potential importance in the development of viral vaccines capable of better protection against diseases while being at the same time less capable of producing unwanted reactions. A cholesterol adsorption column has been developed which concentrates the viruses 10 fold and purifies 10 fold at the same time.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Acute Respiratory Diseases	U	6-61-03-036
	4.	5. REPORT DATE: 31 Dec. 1958

f. Future Plans: Studies will be continued to investigate and identify various causes, principally viruses of acute respiratory disease in the military population. On the basis of this information, control measures to prevent illness may be developed and applied in military situations to include vaccines and chemoprophylaxis.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Studies in Immunization	U	6-61-03-037
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Communicable Diseases	PO-14

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
AFEB (C) Navy (C&P) Air Force (C&P)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 1 August 1955	59	638M
		60	700M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	700M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

There is a continuing urgent need for finding new immunizing agents, for improving existing ones, for developing methods and procedures to decrease the number of immunizations and severity of reactions, and for developing agents or methods to give more lasting and solid protection against specific diseases. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This is a scientific project which has as its objective the reduction of noncombat casualties in the Armed Forces by providing preventive measures through immunization which would assure that maximum manpower is available at all times to accomplish itsprimary mission despite tactical necessity to operate in areas where specific diseases are endemic.

b. Approach: The approach to this problem involves the improvement of existing vaccines in terms of protective effect or undesirable side-reactions; the development of new vaccines to protect against diseases for which there is no protection at this time; and lastly the simplification of existing techniques

BASD (R & D)	SN.	CN.	C.	X.	I.	C.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Studies in Immunization	U	6-61-03-037
	4.	5. REPORT DATE 31 Dec. 1958

of immunization in terms of total number of injections required for the frequency with which they must be given.

c. Tasks: "See Annual Research Task Summary" (Pages 131 - 133 Incl.)

*Development of Modified Dengue Fever Vaccine

* Study of the Basic Phenomena of Natural and Induced Immunity

*Basic Studies of Improved Vaccines for Immunization of the Soldier

d. Other Information: (1) This project includes important scientific research. Number of research tasks - 3. Number of research contracts - 16.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Item -

Agency	Project Number	Title
Navy	NM 52 00 00	Investigation of Epidemiology, Etiology, Pathology, Diagnosis and Prevention of Communicable Disease
Air Force	7753	Air Force Preventive Medicine

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

Task - Development of Modified Dengue Fever Vaccine

MD-660 - Dr. Charles L. Wisseman, University of Maryland, Baltimore, Md.

Task - Study of the Basic Phenomena of Natural and Induced Immunity

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-246 - Dr. Albert H. Coons, Harvard University, Cambridge, Mass.
MD-677 - Dr. Irwin H. Lepow, Western Reserve University, Cleveland, Ohio

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Studies in Immunization	U	6-61-03-037
	4.	5. REPORT DATE 31 Dec. 1958

MD-890 - Dr. A. G. Osler, Johns Hopkins University, Baltimore, Md.
MD-568 & MD-994 - Dr. A. M. Pappenheimer, Harvard University, Cambridge, Mass.
(MD-568 - Terminated 30 September 1958)
MD-954 - Dr. Chandler A. Stetson, Jr., New York University, New York, N. Y.

Task - Basic Studies of Improved Vaccines for Immunization of the Soldier

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
MD-482 - Dr. E. E. Baker, Boston University, Boston, Mass.
MD-963 - Dr. W. Paul Havens, Jr., Jefferson Medical College, Philadelphia, Pa.
MD-570 - Dr. Werner Henle, Children's Hospital, Philadelphia, Pa.
MD-270 - Dr. Johannes Ipsen, Harvard University, Cambridge, Mass.
MD-122 - Dr. Karl F. Meyer, University of California, Berkeley, Calif.
MD-973 - Dr. Oscar A. Ross, Western Reserve University, Cleveland, Ohio
MD-055 - Dr. J. C. Snyder, Harvard University, Cambridge, Mass.
MD-693 - Dr. Theodore E. Woodward, University of Maryland, Baltimore, Md.
MD-770 - Dr. John P. Fox, Tulane University, New Orleans, La.
(Terminated 30 June 1958)

e. Background History and Progress: (1) Background History: Research was initiated to study the basic phenomena of natural immunity in men and animals against communicable diseases of military importance and to apply these principles in development of new or improved biological products for the immunization of our military forces and the control or prevention of epidemic disease.

(2) Progress: This project is one of continuing investigation. Some progress has been made in the development of tissue culture vaccines and it is hoped that these will lead away from vaccines based on processed animal tissues such as brain. Some progress has also been made toward the development of antigens common to more than one of the arthropod-borne viruses. At present an experimental dried smallpox vaccine is undergoing potency testing after varying periods of storage at different temperatures. It is anticipated that this vaccine will have a shelf life of several years when stored at ordinary room temperatures. Such a vaccine will be a great advantage over our present one, which has a dating period of three months and then only when kept frozen.

f. Future Plans: Investigations will continue to develop means of increasing protection afforded by existing vaccines and to develop new vaccines to protect against diseases for which no vaccines currently exist.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Ecology and Control of Disease Vectors and Reservoirs	U	6-61-04-007
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Preventive Medicine	Entomology	PO-14

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
QMG (C); Chem Corps (C); Engr Corps (C); Navy (C); Air Force (C); USDA (C); AFPCB (C); NRC (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 2 August 1954	59	250M
		60	250M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	250M
19. REPLACED PROJECT CARD AND PROJECT STATUS			

20. REQUIREMENT AND/OR JUSTIFICATION

Many severe and fatal infectious diseases of man are transmitted from animals to man, and from man to man by an intermediate vector, frequently an insect. The identification of animal hosts and vectors, a knowledge of their ecology, physiology and genetics as well as availability of methods for their control are of great military importance. Historically, even as late as the Korean conflict, such diseases often have been or presented a greater threat of military disaster than enemy action. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This is a scientific project for study of vector-borne diseases. It is common knowledge now that many diseases are transmitted to man by animals and vectors, usually insects, and certainly malaria and yellow fevers are classic examples. Less common is the knowledge as to the variety of diseases that are transmitted in this fashion. In many areas of the world the varying diseases, the hosts, the vectors, and the modes of transmission are unknown. Frequently they are not recognized simply because the indigenous populations are exposed to the agents early in life, acquire unrecognized or inapparent infections, and if they do not succumb to a "fever of unknown origin" or similar complaint, they become immune. Each year, as knowledge accumulates, more

OASD (R & D)	SN.	CN.	C.	X.	I.	C.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Ecology and Control of Disease Vectors and Reservoirs	U	6-61-04-007
	4.	5. REPORT DATE 31 Dec. 1958

examples of epidemiological significance of such diseases are added. The salient fact of the greatest military importance is that when a group of nonimmunes are forced to deploy and operate in these areas, they acquire these diseases.

b. Approach: This problem is being approached through the utilization of insect ecology and behavior patterns to provide maximum effect from insecticides already available. Studies are being made through trapping and identifying the species of arthropod or mammal involved in the field and in the laboratory in relating the vector or reservoir species to human disease.

c. Tasks: "See Annual Research Task Summary" (Pages 64 & 134)

*Investigations of Insecticides and Resistance

*Studies of Insect Reservoirs and Vectors of Disease

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 2. Number of research contracts - 17.

(2) Standardization Item - Not applicable

(3) Engineering Test - Not applicable

(4) Operational Availability Date - Not applicable

(5) Same or Related Items -

Agency	Project Number	Title
Quartermaster	7-65-01-002	Insecticides and Rodenticides
Corps of Engineers	8-65-50-005	Equipment and Methods for Control of Insects, Rodents, and Other Pests
Navy	NM 51 00 00	Expeditionary Aspects of Preventive Medicine
Agriculture	- -	Protection Against Insects

The Quartermaster General is responsible for research on and development of measures to protect foods and fabrics against infestation.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Ecology and Control of Disease Vectors and Reservoirs	U	6-61-04-007
	4.	5. REPORT DATE 31 Dec. 1958

The Corps of Engineers is conducting studies for developing equipment and methods for the ground dispersal of insect and rodent control agents.

The Navy is conducting research to develop methods to reduce damage caused to Navy equipment by the marine borer, insects, rodents and other pests, and to improve the comfort and habitability of ships through improved methods of pest control.

The work on rodenticides and insecticides is coordinated through the Armed Forces Pest Control Board of the Department of Defense.

(6) Specific Review Points - Not applicable

(7) Item 12 - Contractor and/or Laboratory -

Task - Investigations of Insecticides and Resistance

Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
National Science Foundation (Connecticut Agricultural Experiment Station, New Haven, Conn.)
MD-778 - Dr. R. L. Beard, Connecticut Agricultural Experiment Station, New Haven, Conn. (Terminated 31 January 1958)
MD-752 - Dr. Laurence K. Cutkomp, University of Minnesota, St. Paul, Minn.
MD-304 - Dr. W. M. Hoskins, University of California, Berkeley, Calif.
MD-444 - Dr. Daniel Ludwig, Fordham University, New York, N. Y. (Terminated 30 June 1958)
MD-492 - Dr. L. P. Miller, Boyce Thompson Institute for Plant Research, Inc., Yonkers, N. Y.
MD-426 - Dr. Lemar F. Remmert, Oregon State College, Corvallis, Ore.
MD-574 - Dr. Clifford C. Roan, Kansas State College, Manhattan, Kans.
MD-358 & MD-738 - Dr. Robert R. Sokal, University of Kansas, Lawrence, Kans. (MD-358 - Terminated 30 June 1958)

Task - Studies of Insect Reservoirs and Vectors of Disease

Walter Reed Army Medical Center, Armed Forces Pest Control Board
Walter Reed Army Institute of Research, WRAMC, Washington, D. C.
Third U. S. Army Area Medical Laboratory, Ft. McPherson, Ga.
Fourth U. S. Army Area Medical Laboratory, Ft. Sam Houston, Texas
Army Medical Service School, BAMC, Ft. Sam Houston, Texas
MD-981 - Dr. George Anastos, University of Maryland, Baltimore, Md.
MD-714 & MD-1021 - Dr. William E. Bickley, University of Maryland, College Park, Md. (MD-714 - Terminated 31 May 1958

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Ecology and Control of Disease Vectors and Reservoirs	U	6-61-04-007
	4.	5. REPORT DATE 31 Dec. 1958

MD-744 - Dr. Osmond P. Breland, University of Texas, Austin, Texas
MD-308 - Dr. Gottfried S. Fraenkel, University of Illinois, Urbana, Ill.
MD-653 - Dr. Don W. Micks, University of Texas, Galveston, Texas
(Terminated 30 June 1958)
MD-430 - Dr. T. Wilson, Institute for Medical Research, Kuala Lumpur, Malaya

e. Background History and Progress: (1) Background History: In many parts of the world where troops may be deployed, disease vectors and reservoirs could become major obstacles to military operations, for example, scrub typhus and malaria in World War II. Therefore, to overcome these obstacles an understanding of ecology and a rational approach to prevention or elimination of the development of resistance of insects to insecticides is essential. By authority of Department of Defense Directive No. 5154.12, 17 November 1956, the Armed Forces Pest Control Board was originated to function as a joint agency of the three military departments under the management control of the Secretary of the Army. This Board functions as a coordinating agency in the field of pest control; serves as an advisory body and provides liaison with other agencies as required. Research has been carried on to provide data upon which new and improved control measures can be developed and used to combat diseases involving animal, arthropod vectors or hosts of the infectious agent.

(2) Progress: This project is one of continuing investigation. New insecticides are being studied. A relatively new compound, diethyltoluamide, has been found to have a more prolonged repellent effect and to be effective against more species of medically important arthropods than other nontoxic repellent preparations presently available.

f. Future Plans: Studies will continue on problems connected with insect and animal vectors of disease and control measures directed against these vectors. Particular attention will be devoted to development of resistance to insecticides in vector insects.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Health Hazards of Military Chemicals	U	6-61-14-001
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec.1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Preventive Medicine	Toxicology	PO-14

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research & Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Ord C (C) Cml C (P&C) CE (C) USAF (C) ONR (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 27 November 1950	59	75M
		60	75M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	75M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

This project is to supply information regarding hazard to personnel handling military chemicals, such as propellant fuels and oxidizers exhaust gases from solid propellant charges, hydraulic fluids, fire extinguishants, and other chemicals for using agencies. Toxicological information on many chemicals proposed for technological use by the DOD is inadequate and preventive measures and treatment for casualties must be evolved. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This is a scientific project and was initiated to evaluate the hazards from military chemicals so that a selection of chemicals on the basis of toxicity can be made by using agencies. Where no suitable less toxic substitute chemical can be employed by operating groups for technological reasons, an appreciation of hazard is realized so that suitable measures for protection and therapy can be developed. Results of this research will be used for the preparation of safety directives for handling military chemicals.

b. Approach: To accomplish the purpose of this project, the following approaches are being used on all compounds submitted by operating agencies:

OASD (R & D)	SN.	CN.	C.	X.	I.	C.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Health Hazards of Military Chemicals	U	6-61-14-001
	4.	5. REPORT DATE 31 Dec. 1958

(1) Preceding the initiation of laboratory work, a thorough search of the literature is made and all available information on the operational use of the compound is collected. (2) Initial acute toxicity tests are performed on experimental animals by the routes of administration indicated by the practical hazards. Compounds of experimental interest only are not carried beyond the preliminary screening stage. (3) Subacute and chronic toxicity experiments including pertinent physiological and pathological studies, are conducted. (4) Mechanisms of physiological action are investigated as a basis for the formulation of methods of therapy. (5) Research on the development of simple tests, for the detection of minimal toxic effects resulting from exposure is being pursued.

c. Task: "See Annual Research Task Summary." (Page 135)

*Health Hazards of Military Chemicals

d. Other Information: (1) The task of this project comes under the category of significant scientific research. Number of research tasks - 1. Number of research contracts - 0.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items -

Agency	Project Number	Project Title
Chemical Corps	4-61-14-002	Health Hazards of Military Chemicals
Navy	NM 53 00 00	Hazards from Use of Military Chemicals
"	NM 63 00 00	Toxicology
Air Force	7758	Aviation Physiology
" "	7159	Health Hazards of AF Materials

(6) Specific review points - Not applicable

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Health Hazards of Military Chemicals	U	6-61-14-001
	4.	5. REPORT DATE 31 Dec.1958

(7) Item 12 - Contractor and/or Laboratory:

Chemical Corps Medical Laboratories, Army Chemical Center, Maryland

e. Background History and Progress: (1) Background History: This is essentially an occupational health problem of safe handling, storage, use and disposal of chemicals with which man has had little or no previous experience. Unless toxicological data are obtained, widespread use of insecticides, rodenticides, hydraulic fluids, missile propellants, fire extinguishers, etc., can cause disability of military personnel through toxic actions. Estimates are applied to the evaluation and selection of military chemicals from the standpoint of toxicity by using agencies. When less toxic substitutes are not available, proper procedures and devices for handling these chemicals are being studied in order to minimize the toxic effects in Armed Forces personnel.

(2) Progress: Studies on the toxicity of borane-type high energy fuels are continuing. Investigation of chronic toxicity of uns-dimethylhydrazine has been completed, as well as study of continuous exposure to monoethanolamine vapor. Toxicology of perchloryl fluoride gas and lubricating oils after high temperature pyrolysis is under study.

f. Future Plans: Studies will be continued to obtain additional information on the toxicity of chemical compounds in use by, or potentially useful to, the military in order to prevent non-battle injury to troops.

g. References: "See Annual Research Task Summary"

h. Modernization code: Not applicable.

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSGRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Oral Diseases	U	6-63-01-006
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Investigations, Authorized	PO-14

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	14. DATE APPROVED	15. PRIORITY	16. MAJOR CATEGORY
US Department of Commerce, National Bureau of Standards (C) Navy (C) Air Force (C)		9 July 1951	2	7.23

17. EST. COMPLETION DATES	
RES.	
DEV.	
TEST	
OP. EVAL.	
18. FY.	**FISCAL ESTIMATES**
59	400M
60	400M
T	400M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

To reduce oral disease which affects 95% of the military age group, resulting in loss of time for treatment. This study requires investigation in all fields of the science of dentistry. Studies of the basic causes as well as methods of treatment are essential if any substantial reduction in dental casualties is to be effected. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objective of this project is to investigate the causes, treatment and epidemiology of dental caries, periodontitis, and other oral diseases which affect military personnel.

b. Approach: To investigate the bacteriologic and biochemical aspects of dental caries; to evaluate laboratory chemical analysis of dentin and enamel of both carious and noncarious specimens; to investigate the causes and treatment of lesions of the oral tissue; and to conduct research on the physical and chemical properties of dental materials.

22. OASD (R & D)	SN.	CN.	C.	X.	I.	C.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Oral Diseases	U	6-63-01-006
	4.	5. REPORT DATE 31 Dec.1958

c. Tasks: "See Annual Research Task Summary." (Pages 97 - 101 Incl.)

*Prevention and Treatment of Dental Caries and Periodontal Disease

*Improvement of Dental Materials

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 2. Number of research contracts - 29.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related item - Work conducted at the National Bureau of Standards is in cooperation with the Council on Dental Research of the American Dental Association, The Army Dental Corps, the Air Force Dental Service, the Navy Dental Corps and the Veterans Administration.

(6) Specific review points - Not applicable

(7) Item 12 - Contractor and/or Laboratory:

Task - Prevention and Treatment of Dental Caries and Periodontal Disease

Armed Forces Institute of Pathology, WRAMC, Washington, D.C.
Walter Reed Army Institute of Research, WRAMC, Washington, D.C.
MD-390 - Dr. Wallace D. Armstrong, University of Minnesota, Minneapolis, Minn.
MD-909 - Dr. James K. Avery, University of Michigan, Ann Arbor, Michigan
MD-906 - Dr. Baldev R. Bhussry, Georgetown University, Washington, D. C.
MD-941 - Dr. Lester R. Cahn, Mt. Sinai Hospital, New York, N.Y.
MD-940 - Dr. Milton B. Engel, University of Illinois, Chicago, Ill.
MD-768 - Dr. B. H. Ershoff, Western Biological Laboratories, Culver City, Calif.
MD-769 - Dr. Robert B. Fischer, Indiana University, Bloomington, Ind. (Terminated 30 September 1958)
MD-675 - Dr. John Haldi, Emory University, Georgia
MD-449 - Dr. Frederick W. Kraus, University of Alabama, Birmingham, Ala.
MD-721 - Dr. Robert E. Moyers, University of Michigan, Ann Arbor, Mich.
MD-773 & MD-774 - Dr. Ward Pigman, University of Alabama, Birmingham, Ala.
MD-460 - Dr. Henry M. Scherp, University of Rochester, Rochester, N.Y. (Terminated 30 June 1958)
MD-718 - Dr. Harry H. Shapiro, Columbia University, New York, N.Y.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Oral Diseases	U	6-63-01-006
	4.	5. REPORT DATE 31 Dec.1957

MD-400 - Dr. John M. Slack, West Virginia University, Morgantown, W. Va. (Terminated 31 July 1958)
MD-859 - Dr. Richard W. Tiecke, Northwestern University, Chicago, Ill.
MD-765 - Dr. Otto R. Trautz, New York University, New York, N. Y.
MD-706 - Dr. Samuel Turesky, Tufts College, Boston, Mass.(Terminated 31 May 1958)
MD-622 - Dr. Joseph P. Weinmann, University of Illinois, Chicago, Ill.
MD-857 - Dr. Helmut D. Zander, Eastman Dental Dispensary, Rochester, N.Y.
MD-989 - Dr. Doran D. Zinner, University of Miami, Miami, Fla.

Task - Improvement of Dental Materials

National Bureau of Standards, Washington, D.C.
MD-557 - Dr. F. R. Eirich, Polytechnic Institute of Brooklyn, New York
MD-867 - Dr. David B. Mahler, University of Oregon, Portland, Ore.
MD-860 & MD-938 - Dr. Floyd A. Peyton, University of Michigan, Ann Arbor, Mich.
MD-391 & MD-939 - Dr. Ralph W. Phillips, Indiana University, Bloomington, Ind. (MD-391 - Terminated 30 November 1958)
MD-767 & MD-869 - Dr. Eugene W. Skinner, Northwestern University, Chicago, Ill.

e. Background History and Progress: (1) Background History: This project was initiated to find means of reducing the incidence of oral diseases and to provide more adequate and efficient methods of treatment, with emphasis on dental caries and periodontal disease, which affects 95% of military personnel.

(2) Progress: A preliminary study, recently completed, on jet injection local anesthesia in dentistry shows that anesthesia of sufficient depth and duration to successfully complete routine extraction of teeth and cavity preparation is feasible. Jet injection has the following advantages: (1) No discernible injection pain; (2) danger of transmitting infectious hepatitis may be less than with the conventional needle and syringe; (3) eliminates hazard of needle fracture during injection; and (4) ease of sterilization. These advantages suggest desirability for use of this technique in field dentistry. This study presents the first basic change in injection technique in the history of dentistry.

f. Future Plans: Studies will continue on the development of new dental materials, and improvement of present materials, and the influence of technique on their physical and chemical properties.

g. References: "See Annual Research Task Summary."

h. Modernization code: - Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSGRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Advisory Services	U	6-64-01-001
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Science	Investigation, Authorized	

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (P) Air Force (P) QM (P) DA (P) AEC (P)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 12 July 1954	59	305M
		60	325M
	15. PRIORITY: 2 / 16. MAJOR CATEGORY: 7.23	T	325M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

In order to obtain information and advice pertinent to the Army Medical Research Program, it is essential that adequate facilities exist for obtaining expert opinions from civilian medical groups to properly advise The Surgeon General on medical research. (No CDOG reference)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objective is to obtain the advice of recognized individuals in the fields of medicine and allied sciences and to obtain necessary data concerning research projects, and the results of such projects, from information centers engaged in collection and collation.

b. Approach: Maximum use is made of existing scientific bodies that have already established connections with scientists of stature in their respective fields. Additionally, individuals of specialized backgrounds who are not so affiliated can be engaged as consultants where necessary.

OASD (R & D)	SN.	CN.	C.	X.	I.	C.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Advisory Services	U	6-64-01-001
	4.	5. REPORT DATE 31 Dec.1958

c. Tasks:

*Advisory Services of Specialists in Various Fields of Medicine

*Joint Support of Government Agencies in Collection and Dissemination of Scientific Information

d. Other Information: (1) This project includes important scientific research tasks. Number of research tasks - 2. Number of research contracts - 6.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items -

Agency	Project Number	Project Title
Air Force	7158	Handbook of Medical and Biological Data
" "	7761	Bio Information Exchange
" "	7995	Participation NRC Research
Navy	NM 05 00 00	Consultation and Administrative Services

(6) Specific review points - Not applicable

(7) Item 12 - Contractor and/or Laboratory:

Task - Advisory Services of Specialists in Various Fields of Medicine

Navy Contract - Armed Forces-National Research Council Vision Committee
Navy Contract - Armed Forces-National Research Council Committee on Hearing and Bio-Acoustics
Air Force - Armed Forces-National Research Council Committee on Bio-astronautics
MD-118 - National Academy of Sciences - Advisory Services. A joint program in cooperation with FCDA, Navy and Air Force

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Advisory Services	U	6-64-01-001
	4.	5. REPORT DATE 31 Dec.1958

Task - Joint Support of Government Agencies in Collection and Dissemination of Scientific Information

Navy Contract - Smithsonian Institution-Bio-Sciences Information Exchange
MD-118 - National Academy of Sciences - Handbook of Biological Data

e. Background History and Progress: (1) Background History: This project was initiated and is continuing because of the many areas of Medical Research of interest to the Army, and the frequent need for expert advice on particular problems, advisory services are essential to a sound Army Medical Service Research Program. The advisory groups consist of the National Academy of Sciences-National Research Council, Armed-Forces National Research Council Committee on Hearing and Bio-Acoustics, the Armed-Forces National Research Council Vision Committee, Armed-Forces National Research Council Committee on Bio-astronautics, Committee on Metabolism and Nutrition, and individual consultants in specialized fields. The Army Medical Service's share of support of the Bio-Sciences Information Exchange (BSIE) is carried under this project. Through (BSIE) a mechanism is provided on the exchange of current contract support in the biological, medical and psychological sciences on a world-wide coordinated basis.

(2) Progress: The work done under this contract is a continuing type of operation.

f. Future: It is planned to obtain advisory services of recognized and eminent specialists in the various fields of medicine, and to support joint efforts of Government agencies in the collections, collation and dissemination of scientific information.

g. References: See progress reports of Agencies listed.

h. Modernization code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Terminated	REPORT CONTROL SYMBOL: CSGRD-15

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Investigations in Hearing and Speech	U	6-64-01-010
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Basic Medical Sciences	Investigation, Authorized	PO-14

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	Audiology & Speech Correction Center WRAH, WRAMC, Washington, D.C.	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 12 July 1954		
	15. PRIORITY: 10 / 16. MAJOR CATEGORY: 7.23		

19. REPLACED PROJECT CARD AND PROJECT STATUS

Terminated 10 March 1958 - Work carried out under Project 6-95-20-001

20. REQUIREMENT AND/OR JUSTIFICATION

Each year a large number of Army personnel with hearing losses (resulting from auditory trauma and other causes) and/or speech defects are referred to the Audiology and Speech Correction Center, WRAMC, for diagnosis, treatment and rehabilitation. It is essential that diagnostic methods, therapeutic procedures and rehabilitation programs be constantly revised and improved in order to assure the greatest conservation of military manpower. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objectives of this project are to investigate the characteristics of the deafened ear and its etiology as well as the mechanisms of speech; to investigate possible prophylactic measures that might be employed in noisy environments; and to apply the research findings to clinical practices and rehabilitation methods in order to assure the greatest conservation of military manpower.

b. Approach: Experimental investigations are being made of the most practical techniques for making otological examinations in the military. Also, studies are being conducted on the organic and psychological aspects of hearing and speech behavior.

OASD (R & D)	SN.	CN.	C.	X.	I.	C.

DD FORM 1 APR 55 613 REPLACES DD FORM 613, JAN 52.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Investigations in Hearing and Speech	U	6-64-01-010
	4.	5. REPORT DATE 31 Dec.1958

c. Task - Diagnosis, Therapy, and Rehabilitation of Hearing Disorders

d. Other Information: (1) The task of this project comes under the category of significant scientific research. Number of research tasks - 1. Number of research contracts - 0.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items - Not applicable

(6) Specific review points - Not applicable

e. Background History and Progress: (1) Background History: This project was initiated in accordance with AR 40-118 "Auditory Evaluation, Treatment and Transfer of Cases of Deafness for Issuance and Fitting of Hearing Aids," dated 15 June 1956, with changes 2, dated 24 July 1957 and 3, dated 12 December 1957, and Technical Manual 195, "The Army's Audiology and Speech Correction Program for the Deafened," dated 4 January 1951. Project 6-64-01-010 Investigations in Hearing and Speech, was terminated 10 March 1958, further investigations of sound and hearing in relation to military performance will be carried out under Project 6-95-20-001 - Psychophysiological Studies.

(2) Progress: See Project 6-95-20-001 - Psychophysiological Studies.

f. Future Plans: Not applicable

g. References: Not applicable

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSGRD-13

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Environmental Physiology	U	6-64-12-028
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Internal Medicine	PO-13

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C)		RES.	
Air Force (C)		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 3 December 1951	59	512M
		60	500M
	15. PRIORITY: 10 / 16. MAJOR CATEGORY: 7.23	T	500M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Soldiers have been and will be required to exist and fight in all types of environments. Much is yet to be learned concerning the efficiency of the soldier in various environments or the physiologic mechanisms whereby he may adapt himself to environmental conditions and thereby increase his efficiency. Present knowledge is scanty, particularly in relation to cold environments. (Par 1412c GDOD)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objective is to study all phases of physiologic reactions of man and experimental animals to various environments and the conditions brought on by these environments in an attempt to advance the knowledge of the physiologic and biochemical alterations that take place under such stresses.

b. Approach: Utilizing animals as subjects, experiments are carried out under a variety of adverse climatic and nutritional situations. Animals and human volunteers are studied in hot and cold environmental chambers. Field studies to simulate actual operating conditions with volunteers are being initiated to obtain the final human evaluation.

22. OASD (R & D)	SN.	CN.	C.	X.	I.	C.

DD FORM 1 APR 55 613

REPLACES DD FORM 613, 1 JAN 52.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Environmental Physiology	U	6-64-12-028
	4.	5. REPORT DATE 31 Dec.1958

c. Tasks: "See Annual Research Task Summary." (Page 115)

*Pathogenesis, Physiopathology, Prevention and Treatment of Cold Injury

*Physiological Responses to Environmental Variables

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 2. Number of research contracts - 11.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items:

Agency	Project Number	Project Title
Quartermaster	7-83-01-003	Effects of Natural & Military Environments on th Soldier
Air Force	7163	Physiology Research
" "	7758	Aviation Physiology
Navy	NM 19 00 00	Miscellaneous Problems Involved in Aviation Medicine
"	NM 24 00 00	Physiology in the Underse Environment including Habitability of and Escape from Submarines

(6) Specific review points - Not applicable

(7) Item 12 - Contractor and/or Laboratory:

Task - Pathogenesis, Physiopathology, Prevention and Treatment of Cold Injury

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Environmental Physiology	U	6-64-12-028
	4.	5. REPORT DATE 31 Dec. 1958

U.S. Army Medical Research Laboratory, Fort Knox, Ky.
MD-948 - Dr. Harwood S. Belding, University of Pittsburgh, Pa.
MD-1008 - Dr. D. M. MacCanon, State University of South Dakota, Vermillion, S.D.
MD-999 - Dr. Isaac M. Taylor, University of North Carolina, Chapel Hill, N.C.
MD-873 - Dr. Frederick A. Fuhrman, Stanford University, Stanford, Calif.
(Terminated 30 June 1958)

Task - Physiological Responses to Environmental Variables

U.S. Army Medical Research Laboratory, Fort Knox, Ky.
MD-949 - Dr. Carl S. Blyth, University of North Carolina, Chapel Hill, N.C.
MD-947 - Dr. Robert W. Bullard, Indiana University, Indianapolis, Ind.
MD-913 - Dr. George E. Burch, Tulane University, New Orleans, La.
MD-998 - Dr. Steven M. Horvath, Lankenau Hospital, Philadelphia, Pa.
MD-952 - Dr. Frank H. Jacobson, Jefferson Medical College, Philadelphia, Pa.
MD-1002-Dr. Lloyd R. Yonce, University of North Carolina, Chapel Hill, N.C.
MD-279 - Dr. Warren S. Rehm, University of Louisville, Ky.
(Terminated 31 March 1958)

e. Background History and Progress: (1) Background History: In order to elucidate clearly the many physiologic and biochemical alterations that occur during and following exposure to various environmental stresses, it is necessary to study these alterations in various animal preparations and in man.

(2) Progress: The physiology of acclimatization and the techniques by which it can be most easily and rapidly achieved are being vigorously studied because of the obvious application to military operations on a world-wide basis. It has been shown that acclimatization can be achieved in man and that it may be a significant factor in maintaining the efficiency of troop operations over long distances and under varying climatic conditions.

f. Future Plans: Studies are continuing to develop data concerning the soldier's internal physiological responses when he is exposed to a variety of environments. Attempts will be made to identify the limits of physiological stress which the soldier can stand and still carry out this combat mission without bodily injury. Also, appropriate therapeutic and protective techniques will be developed in the event body damage might result or cannot be prevented.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Arctic and Subarctic Field Medical Problems	U	6-78-01-004
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec.1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Rescue and Survival Equipment	Investigation, Authorized	PO-11

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES
AFF (C): ASMMSC (C): OC (C) QM (C): SC (C) Navy (C) Air Force (C)		RES. DEV. TEST OP. EVAL.

14. DATE APPROVED	15. PRIORITY	16. MAJOR CATEGORY
2 June 1952	1C	7.23

18. FY.	FISCAL ESTIMATES
59	100M
60	100M
T	100M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

There is both a present and a continuing future need to maintain the operational efficiency of military personnel in the arctic and subarctic, and to develop appropriate means of meeting medical problems which assume unique importance under arctic conditions of temperature extremes. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This is a scientific project to develop information, techniques, methods, equipment and doctrine which will permit the maintainance of health and the treatment of injury and disease under arctic conditions.

b. Approach: This problem is approached both by field studies in the arctic area and by laboratory investigations in the United States. Field studies can best be conducted where logistic support can be furnished by existing military units. Studies and investigations are being conducted in Alaska, Canada, Greenland and Finland.

22. OASD (R & D)	SN.	CN.	C.	X.	I.	C.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Arctic and Subarctic Field Medical Problems	U	6-78-01-004
	4.	5. REPORT DATE 31 Dec.1958

c. Tasks: "See Annual Research Task Summary" (Page 136)

*Epidemiology of Disease and Illness in the Arctic

*Health and Habitability of Military Shelters for Arctic Use

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 2. Number of research contracts - 2.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related item -

Agency	Project Number	Title
Quartermaster Corps	7-83-01-001	Nature and Distribution of Significant Factors
Chemical Corps	4-98-01-003	Environmental Surveillance
Ordnance Corps	5-98-09-004	Climatic Tests of Ordnance Equipment
Transportation Corps	9-98-09-001	Climatic Tests
Corps of Engineers	8-98-09-002	Environmental Research Testing
" " "	8-66-02-004	Snow, Ice, Permafrost and Frozen Ground
Navy	NY-000-011	Permafrost Field Station
Air Force	7955	Arctic Environmental Medicine

The Technical Services as listed above under the projects as indicated, conduct tests of their equipment and materiel to evaluate the effects of environmental conditions on these items.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Arctic and Subarctic Field Medical Problems	U	6-78-01-004
	4.	5. REPORT DATE 31 Dec.1958

(6) Specific review points - Not applicable

(7) Item 12 - Contractor and/or Laboratory:

Task - Epidemiology of Disease and Illness in the Arctic

U. S. Army Medical Research Laboratory, Fort Knox, Ky.
MD-586 - Dr. John E. Gordon, Harvard University, Cambridge, Mass.
(Terminated 30 June 1958)

Task - Health and Habitability of Military Shelters for Arctic Use

U. S. Army Medical Research Laboratory, Fort Knox, Ky.
MD-203 - Dr. Constantin P. Yaglou, Harvard University, Cambridge, Mass.

e. Background History and Progress: (1) Background History: Preparedness for operations in low temperature is essential to national security. Adequate medical service, including prevention of diseases through improved sanitation, rescue, shelter, evacuation and treatment of casualties, is necessary to the success of such operations. Of particular importance is the evaluation of the influence of waste disposal and other epidemiological factors in the spread of enteric disease, as well as the potential medical problems of exposure to carbon monoxide and other environmental hazards. Recent increase of interest in operations in certain arctic areas points to the necessity for continued effort in this area. This project is essentially a carrier project to serve as a nucleus for field medical research on arctic problems. This work is closely coordinated with other medical projects such as Nutrition, Metabolism, Environmental Physiology, Psychophysiology, Traumatic Surgery and Shock, etc.

(2) Progress: Epidemiologic studies of the mode of transmission of diarrheal diseases among indigenous personnel in Alaska, West Greenland and Scandinavia have shown that the probable mode of transmission of these diseases is by person to person contact rather than through contaminated water or food supplies. Control measures to prevent diseases among Army personnel are based upon such information.

f. Future Plans: This is a continuing research project to develop basic information, techniques and methods which will assist in providing essential field medical service for arctic and subarctic military operations.

g. References: "See Annual Research Task Summary"

h. Modernization code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Psychophysiological Studies	U	6-95-20-001
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Social and Behavioral Sciences	Physiological Psychology Experimental Psychology	PO-6

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Other Technical Services, DA (P&C) Navy (C) Air Force (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 12 July 1954	59	415M
		60	415M
	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	415M
19. REPLACED PROJECT CARD AND PROJECT STATUS			

20. REQUIREMENT AND/OR JUSTIFICATION: The efficient operation of recently developed equipment is placing greater demands upon the users. Basic human sensory and perceptual factors that affect the speed and efficiency of operation under various conditions must be studied in order to determine optimum operating arrangements of user and equipment. The immediate physical environment and the climatic environment of operation must be studied in order to determine if working space, work loads, noise, vibration, temperature, gases, etc., are consistent with human capabilities and if these factors alter speed and efficiency of operation indicating a need for changes in design of equipment compatible with logistic requirements to reduce any adverse effects. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objectives of this project are to determine the basic psychophysiological data required for optimal design and operation of man-machine systems; to study the interaction effects produced by simultaneous stimulation of the several sense departments; and to determine the effects of various physical energies which have an effect on a soldier's performance.

22. OASD (R & D)	SN.	CN.	C.	X.	I.	C.

DD FORM 1 APR 55 613
REPLACES DD FORM 613, 1 JAN 52.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Psychophysiological Studies	U	6-95-20-001
	4.	5. REPORT DATE 31 Dec 1958

b. Approach: Laboratory studies and field investigations, utilizing specially built equipment, are conducted with emphasis on the effects of control and display characteristics on psychomotor performance. Temperature extremes, high noise levels and vibrations are being systematically studied in the laboratory with special attention to changes in behavior which may be produced. Through laboratory techniques, using oscillating or rotating platforms to simulate realistic field conditions, measurement is made of performance of both animals and humans. Studies and evaluations are made of inner ear structure and function, sound attenuation characteristics of ear protective devices, and the influence of high noise intensity on various psychological processes and performance tasks. The principal factors involved in accuracy of perception and visual observation are investigated to determine their implications for optical sighting devices, stereoscopic range finding, and visual operations in various environments.

c. Tasks: "See Annual Research Task Summary" (Pages 242-246 Incl)

*Investigation of Vision and Perception in Relation to Performance.

*Investigation of Sound and Hearing in Relation to Performance.

*Investigation of Coordination and Balance in Relation to Performance.

*Somatic Influences on Performance.

*Complex Behavioral Processes in Relation to Performance.

d. Other information: (1) This project consists entirely of scientific research. Number of research tasks - 5. Number of research contracts - 15.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date: Not applicable

(5) Same or related items:

Agency	Project Number	Title
OQMG	7-83-01-004	Operational Effectiveness of the QM-Equipped Soldier
Navy	NM 22 00 00	Human Engineering and Psychophysiological Studies in Underwater Operations

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Psychophysiological Studies	U	6-95-20-001
	4.	5. REPORT DATE: 31 Dec 1958

Navy	NM 42 00 00	Psychological Adjustment of Personnel to Training and Operational Situations
Navy	NM 04 00 00	Fundamental Studies in Psychology
Navy	NM 17 00 00	Studies on Psychophysiology, Including Sensations and Illusions
Navy	NM 18 00 00	Problems in Human Engineering
Air Force	7753	AF Preventive Medicine - Protection of Personnel
Air Force	7756	AF Clinical Medicine
Air Force	7758	Aviation Physiology

(6) Specific review points - Not applicable

(7) Item 12 - Contractor and/or Laboratory:

Task - Investigation of Vision and Perception in Relation to Performance

US Army Medical Research Laboratory, Ft. Knox, Ky.
MD-866 - Dr. Walter Cohen, University of Buffalo, Buffalo, N. Y.
MD-536 - Dr. Mason N. Crook, Tufts University, Medford, Mass.
MD-871 - Dr. E. Parker Johnson, Colby College, Waterville, Maine
MD-722 - Dr. Donald B. Lindsley, University of California, Los Angeles, Calif.
MD-979 - Dr. Lorrin A. Riggs, Brown University, Providence, R. I.

Task - Investigation of Sound and Hearing in Relation to Performance

US Army Medical Research Laboratory, Ft. Knox, Ky.
Audiology & Speech Center, WRAMC, Washington, D. C.
MD-985 - Dr. K. D. Kryter, Bolt, Beranek & Newman, Inc., Cambridge, Mass.
MD-634 - Dr. Merle Lawrence, University of Michigan, Ann Arbor, Michigan

Task - Complex Behavioral Processes in Relation to Performance

US Army Medical Research Laboratory, Ft. Knox, Ky.
MD-719 - Mr. Don Cahalan, Natl Opinion Res Center, Chicago, Ill (terminated 30 June 1958)
MD-537 - Dr. Richard H. Henneman, University of Virginia, Charlottesville, Va.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Psychophysiological Studies	U	6-95-20-001
	4.	5. REPORT DATE 31 Dec 1958

Task - Investigation of Coordination and Balance in Relation to Performance

US Army Medical Research Laboratory, Ft. Knox, Ky.
MD-625 - Dr. Edward Girden, Brooklyn College, Brooklyn, N.Y. (terminated 31 Aug 58
MD-626 - Dr. Robert B. Malmo, McGill University, Montreal, Canada
MD-877 - Dr. William E. Kappauf, University of Illinois, Urbana, Ill.

Task - Somatic Influence on Performance

US Army Medical Research Laboratory, Ft. Knox, Ky.
MD-797 - Dr. M. A. Schmitz, Bostrom Research Labs, Milwaukee, Wisc.
MD-683 - Dr. D. R. Kenshalo, Fla State University, Tallahassee, Fla.
MD-1001 - Dr. F. Nowell Jones, University of California, Los Angeles, Calif.

e. Background history and progress:

(1) Background history: In accordance with AR 70-8, Personnel and Training, dated 20 December 1955, The Surgeon General was assigned the responsibility for the conduct of research to determine basic psychophysiological data to satisfy Army requirements for such information.

(2) Progress: Studies concerned with the visual aspects of aiming and sighting have led to new information concerning depth perception and the judging of absolute and relative distances. Precisely calibrated equipment has been devised and has made possible new audiometric standards for normal hearing thresholds. The sound environment of the soldier has been measured in terms of the magnitude and frequencies of the impulse-type noises derived from U. S. Army weapons. New information concerning control of vestibular reactions by the vestibular end-organs has been developed from basic studies dealing with human reactions to linear and angular accelerations and decelerations. The primary effects of vibration on animals have been found to be physiological and anatomical in nature, with behavioral decrements secondary and probably a consequence of the internal bodily changes. In studies of human subjects, results are only tentative but some trends in performance decrement have been shown to occur under conditions of vibration which duplicate realistic truck-driving conditions in the laboratory.

f. Future Plans: Research will be directed, not only to the identification of the soldier's tolerance limits in terms of psychophysiological function, but also to the effect of psychophysiological stress on his behavior in the operation and maintenance of his equipment. Studies will continue with an attempt to close the gaps in our knowledge concerning optimal utilization of the human sense modalities and protection of the soldier from adverse conditions.

g. References: "See Annual Research Task Summary"

h. Modernization Code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSGRD-15

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Investigations in Overseas Units	U	6-97-85-001
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec.1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Applied Studies and Techniques	Global Medicine	SR-13

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 21d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	14. DATE APPROVED	15. PRIORITY	16. MAJOR CATEGORY
Navy (C) Air Force (C)		12 July 1954	1C	7.23

17. EST. COMPLETION DATES	
RES.	
DEV.	
TEST	
OP. EVAL.	

18. FY.	FISCAL ESTIMATES
59	142M
60	142M
T	142M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

National commitments require the presence of U. S. Armed Forces in different areas of the world where they are exposed to diseases and trauma not normally encountered in the Continental United States. Certain phases of medical research can only be carried out in areas where such conditions exist. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief. This is a scientific project. Personnel serving in various locations of the world are exposed to hazards peculiar to the area, to their living conditions, and to combat situations. Many aspects of these hazards cannot be reproduced in the United States nor can theater personnel adequately investigate all of them in addition to their assigned duties.

b. Approach: Medical problems of this nature are brought to the attention of the U.S. Army Medical Research and Development Command, on the basis of information received from theater personnel, from past experience, and from a study of medical statistics. The investigation proper is usually performed by individually tailored teams on a temporary duty basis, the teams being composed of

22. OASD (R & D)	SN.	CN.	C.	X.	I.	C.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Investigations in Overseas Units	U	6-97-85-001
	4.	5. REPORT DATE 31 Dec.1958

specialists who may supplement theater personnel. Occasionally individual consultants are sent. Depending upon the requirement, medical research units

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Investigations in Overseas Units	U	6-97-85-001
	4.	5. REPORT DATE 31 Dec.1958

(2) Progress: In mid 1957, investigators at the U. S. Army Medical Research Detachment Unit, Japan, isolated several strains of a new influenza virus from an outbreak of influenza which occurred on a U. S. Navy ship calling at Hongkong. This was most significant since it was soon determined that this was a new variant, and it was possible to predict the occurrence of a world wide influenza pandemic. As a result, large scale vaccine production programs were initiated in the United States utilizing one of the strains isolated at this laboratory and vaccine was available in large quantities in many localities when the epidemic arrived.

A whole body counting facility has been acquired from the Atomic Energy Commission. This unit is located at the Landstuhl Army Medical Center, Germany, where it will be housed in a permanent structure and operated by personnel of the U. S. Army Medical Service. (See "Progress" under Project 6-59-08-014)

f. Future Plans: Research will continue on medical problems of importance in military operations in oversea areas, such as Africa, Panama and Japan. This information is of utmost importance in fulfilling Army Medical Service responsibilities.

g. References: Professional Report 1957, 406th Medical General Laboratory

h. Modernization code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Medical Effects of Blast on Man	U	6-97-87-001
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Basic Medical Sciences	PO-11

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	See Item 12d(7)	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	14. DATE APPROVED	15. PRIORITY	16. MAJOR CATEGORY
Chemical Corps (P) AFSWP (C) Navy (C) Air Force (C)	4-99-02-002-03 Wound Ballistics of Missiles and Blast	12 November 1956	1C	7.23

17. EST. COMPLETION DATES	18. FY.	FISCAL ESTIMATES
RES.		
DEV.	59	38M
TEST	60	38M
OP. EVAL.	T	38M

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION: Insufficient experimental evidence is available on which to base estimates of the pathologic, physiologic and psychologic hazards from blast as a function of differing blast conditions (e.g. static overpressure, dynamic pressure, pulse duration, and pulse shape). A thorough investigation of the significant mechanism of blast injury is necessary for planning purposes to determine: (a) The probability that personnel will be rendered ineffective (physiologically or psychologically) as a result of particular blast characteristics. (b) The threshold of safety contingent on different blast conditions. (c) Defense considerations or protective devices feasible for reducing blast hazards. Emphasis must be placed on principles pertinent to personnel in the open, in foxholes, and in hastily erected fortifications. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objective of this project is to determine the relationship between the physiologic and/or psychologic effects and the specific combination of blast variables to which these effects may be attributed (peak pressures, pressure gradient, duration of overpressure, single or repeated exposure); to determine the range between lethal dosage and tolerability of air blast; and to examine into the

22. OASD (R & D)	SN.	CN.	C.	X.	I.	C.

DD FORM 1 APR 55 613
REPLACES DD FORM 613, 1 JAN 52.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Medical Effects of Blast on Man	U	6-97-87-001
	4.	5. REPORT DATE 31 Dec 1958

interferences by blast with certain physiological functions, sensorimotor abilities and higher central nervous system capacities.

b. Approach: Experiments will be designed with animals as subjects. Laboratory tests will be made of blood pressure, pulse rate, body temperature, basal metabolism, sensory acuity and of any interference to the learning or problem solving capacities of the animal after shock due to blast. Studies will also include examination of pathologic and psychophysiologic hazards derived from secondary sources such as, translational motion, tumbling along open terrain, striking of solid objectives, and the protective measures therefor.

c. Task: "See Annual Research Task Summary." (Page 94)

*Psychological and Physiological Aspects of Blast

d. Other Information: (1) This project consists entirely of scientific research. Number of research tasks - 1. Number of research contracts - 0.

(2) Standardization Item: - Not applicable

(3) Engineering Test: - Not applicable

(4) Operational Availability: - Not applicable

(5) Same or related Items: -

Agency	Project Number	Project Title
Chemical Corps	4-99-02-002-03	Wound Ballistics of Missiles & Blast (U)
Navy	NM 64 00 00	Protection From Blast (Other Than Atomic)

(6) Specific Review Points: - Not applicable

(7) Item 12 - Contractor and/or Laboratory:

Task: Psychological and Physiological Aspects of Blast

United States Army Medical Research Laboratory, Fort Knox, Kentucky

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Medical Effects of Blast on Man	U	6-97-87-001
	4.	5. REPORT DATE
		31 Dec 1958

e. Background History and Progress: (1) Background History: In accordance with instructions contained in DF from Chief, R&D, OCS, DA to The Surgeon General dated 21 May 1956, file No. CRD/G 7354, Subject: Requirements for Information on Primary and Secondary Biological Effects of Air Blast to Army Troops from Nuclear Weapons (U), The Surgeon General, D/A is charged with the responsibility for research on the effects of blast on man.

(2) Progress: Due to technical difficulties in the design and construction of the tube, there has been unavoidable delay in the completion of certain planned experiments which should yield valuable data in the future.

f. Future Plans: Research will continue to obtain information on the relationships between various shapes and overpressures of air blast on animals. Work will continue on animals until the parameters of safety are known. Field studies with animal subjects (or simulated human equivalent) will be performed to verify laboratory studies under realistic conditions.

g. References: "See Annual Research Task Summary"

h. Moderization code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSGRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Physical Standards Research	U	6-97-87-002
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec. 1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Medical Sciences	Basic Medical Sciences Medical Standards	PO-2

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	Walter Reed Army Institute of Research, WRAMC, Washington, D.C.	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Navy (C) USAF (C) DCS Pers (C) TAG (C) CONARC (C) Selective Service (C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 1 April 1957	59	15M
		60	15M
	15. PRIORITY: 2 / 16. MAJOR CATEGORY: 7.23	T	15M
19. REPLACED PROJECT CARD AND PROJECT STATUS			

20. REQUIREMENT AND/OR JUSTIFICATION

Under present conditions, conservation of utilizable manpower has become of paramount importance. This project is designed to investigate methods by which available manpower may be effectively medically evaluated as regards fitness and suitability for the wide variety of assignments within the military establishment. (No CDOG Reference)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: A critical evaluation will be made of the physical standards criteria which are presently generally accepted. A review of current practices resulting from presently accepted criteria and the development of dependable system for the medical evaluation of manpower and a new and hitherto untapped source of skilled military manpower in terms of those individuals whose level of fitness is presently thought to limit or prevent their assignment to military duties.

b. Approach: A critical evaluation and review will be made of the physical standards criteria which are presently generally accepted and of the current practices which result from these criteria.

22. OASD (R & D)	SN.	CN.	C.	X.	I.	C.

DD FORM 1 APR 55 613

REPLACES DD FORM 613, 1 JAN 52.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Physical Standards Research	U	6-97-87-002
	4.	5. REPORT DATE 31 Dec.1958

c. Task: "See Annual Research Task Summary." (Page 95)

*Validation of Minimum Physical Profiles

d. Other Information: (1) This project comes under the category of significant scientific research. Number of research tasks - 1. Number of research contracts - 0.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability date - Not applicable

(5) Same or related items:

Agency	Project Number	Project Title
Navy	NM 14 00 00	Standards for Aviation Personnel
"	NM 23 00 00	Assessment of Personnel for Duty in Undersea Warfare
"	NM 31 00 00	Evaluation and Study of Physical Standards

(6) Specific review points - Not applicable

e. Background History and Progress: (1) Background History: In connection with the present mission of The Surgeon General which is essentially the preservation and maintenance of physical and mental health of the Army, it is necessary that a series of investigations be carried out relating to standards and criteria of mental and physical health.

(2) Progress: A preliminary analysis has indicated that approximately 55% of the individuals now declared unacceptable for military service at pre-induction examination would meet retention criteria and could probably perform military service satisfactorily in an emergency. A revised physical profiling system has been developed and field tested which will eventually permit more accurate job assignment of individuals in terms of their specific physical capabilities and limitations.

R&D PROJECT CARD
CONTINUATION SHEET

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Physical Standards Research	U	6-97-87-002
	4.	5. REPORT DATE 31 Dec.1958

f. Future Plans: Attempts will be made to develop new physical standards techniques which will produce the most accurate and dependable system for the medical evaluation of manpower.

g. References: "See Annual Research Task Summary."

h. Modernization code - Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Biomedical Aspects of Missile Transport	U	6-99-01-001
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec.1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Basic Research	Medical Aspects of Bio-astronautics	BR-1

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	Army Ordnance Missile Command, Huntsville, Ala.	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
AOMC (P&C) Air Force (P&C) Navy (P&C)		RES.	
		DEV.	
		TEST	
		OP. EVAL.	
		18. FY.	FISCAL ESTIMATES
	14. DATE APPROVED: 15 September 1958	59	50M
		60	
	15. PRIORITY: 1-B / 16. MAJOR CATEGORY: 7.23	T	

19. REPLACED PROJECT CARD AND PROJECT STATUS

New Project

20. REQUIREMENT AND/OR JUSTIFICATION

Basic information is required concerning the physiological and psychological effects of high altitudes and rapid speeds on man if the health and effectiveness of military personnel are to be safeguarded. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: The objective is to prepare for the operation of manned missile transportation. All adverse environmental factors such as free inertial systems, radiation, heat exchange, sensory restriction, total stress responses, acceleration, both linear and angular, time versus gravity relationships, optical phenomenon and effects of vibrational spectrum must be thoroughly understood. In addition, the medical effects of propelled materials on personnel will be studied so that appropriate preventive measures can be instituted.

b. Approach: The program of research must progress from the lower forms of life to that of man and be conducted under actual conditions as it is either impossible or impractical to simulate the needed environment. Supporting data

22. OASD (R & D)	SN.	CN.	C.	X.	I.	C.

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
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will be obtained from research conducted in existing laboratories. Inclosed chambers or capsules are to be provided either by the Army Medical Service or another participating agency such as the Bureau of Medicine and Surgery, Department of the Navy. Areas already investigated or currently being investigated by the Air Force and Navy will not be duplicated. Major tasks will be closely coordinated so that the additional facilities and personnel of the US Army Medical Research and Development Command may be utilized to provide the most efficient and direct support possible.

c. Task:

*Biomedical Aspects of Missile Transport

d. Other Information: This project comes under the category of significant scientific research. Number of research tasks - 1. Number of research contracts - 0.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability - Not applicable

(5) Same or related items:

Agency	Project Number	Project Title
Navy	NM 12 00 00	Stress Due to High Altitude
"	NM 62 00 00	Medical Problems Related to Ionizing Radiation
Air Force	7183	Psychological Research on Human Performance
" "	7756	Air Force Clinical Medicine
" "	7758	Aviation Physiology
" "	7771 & 9777	Research in Aviation Biology
" "	7995	Air Force Participation NRC Research
" "	9778	Research in Behavioral Sciences

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(6) Specific review points - Not applicable

e. Background History and Progress: (1) Background History: A meeting was held 11 February 1958 of the National Academy of Science, National Research Council Advisory Committee to discuss the integration and coordination of a Tri-Service Research Program pertaining to "Life in Space." It was agreed that there existed a requirement within the Army, Navy and Air Force for research programs leading ultimately to space travel by man, but embracing also other forms of extra-territorial life or space biology. The Biophysics and Astronautics Research Branch was established in the U. S. Army Medical Research and Development Command, 1 October 1958, to initiate and establish a primary point of contact with the Army Ordnance Missile Command and the Army Ballistic Missile Agency and effecting necessary staff coordination with the biomedical effort of the Department of Defense.

(2) Progress: Liaison personnel have been placed at Redstone Arsenal, Huntsville, Alabama; Wright-Patterson Air Force Base, Dayton, Ohio; Naval Medical Research School, Bethesda, Maryland; Naval Aviation Medical School, Pensacola, Florida and at Langley Air Force Base with the National Aeronautics and Space Administration. At Redstone Arsenal a program was planned with support for the Office of Chief of Ordnance and The Commanding General, Army Ordnance Missile Command and Army Ballistic Missile Agency for the conduct of Biomedical experiments in ballistic missiles entering outer space. These experiments are to be on a non-interference basis with the primary mission of missile testing. This program has already resulted in the successful launching of a primate into outer space for the longest period (750 seconds) of weightlessness yet recorded.

Close coordination with National Aeronautics and Space Administration and National Academy of Sciences - National Research Council has been established and representation provided on their respective committees on Life Sciences and Bioastronautics.

f. Future Plans: Efforts will be made to provide a biomedical research program that will add greatly to the essential biomedical data required for man in space flights.

g. References: None

h. Modernization code: Not applicable

R & D PROJECT CARD	TYPE OF REPORT: Progress	REPORT CONTROL SYMBOL: CSCRD-16

1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Wound Ballistics	U	6-99-02-001
	4. INDEX NUMBER	5. REPORT DATE: 31 Dec.1958

6. BASIC FIELD OR SUBJECT	7. SUB FIELD OR SUBJECT SUB GROUP	7A. TECH. OBJ.
Basic Research	Ballistics, Wound	PO-11

8. COGNIZANT AGENCY	12. CONTRACTOR AND/OR LABORATORY	CONTRACT/W. O. NO.
Army Medical Service	Chemical Corps Medical Laboratories (See Chemical Corps Project 4-99-02-001; 02 & 03	
9. DIRECTING AGENCY: US Army Medical Research and Development Command		
10. REQUESTING AGENCY		

11. PARTICIPATION AND/OR COORDINATION	13. RELATED PROJECTS	17. EST. COMPLETION DATES	
Armed Forces Inst.Path.(P)		RES.	
WRAIR (P)		DEV.	
AMSS,BAMC (P)		TEST	
Cml.C.Med.Labs.(P)		OP. EVAL.	
Ord.C.(C)		18. FY.	FISCAL ESTIMATES
AFSWP (P)	14. DATE APPROVED: August 5, 1957	59	75M
Navy (C)		60	75M
Air Force (C)	15. PRIORITY: 1C / 16. MAJOR CATEGORY: 7.23	T	75M
QM C.(P)			

19. REPLACED PROJECT CARD AND PROJECT STATUS

20. REQUIREMENT AND/OR JUSTIFICATION

Detailed information concerning the location, frequency, and severity of wounds from missiles and blast is needed in order that treatment of the wounded may be improved and competent advice on protective devices provided development agencies. (Par 1412c CDOG)

21. BRIEF OF PROJECT AND OBJECTIVE

a. Brief: This is a scientific project with an objective to determine the relationships between mass, size, shape, energy, velocities, etc., of missiles and blast to the type of wounds inflicted in various regions of the body.

b. Approach: Records of casualties resulting from missiles are studied and plans are made for mounting field research teams in the event of hostilities. Research as indicated by questions posed by development agencies is performed. Assessment is made of the mechanism of injury produced by shock waves from an air blast.

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1. PROJECT TITLE	2. SECURITY OF PROJECT	3. PROJECT NO.
Wound Ballistics	U	6-99-02-001
	4.	5. REPORT DATE 31 Dec.1958

c. Task:

*Studies of High Velocity Missile and Blast Wounds

d. Other Information: (1) All the tasks of this project come under the category of significant scientific research. Number of research tasks - 1. Number of research contracts - 0.

(2) Standardization item - Not applicable

(3) Engineering test - Not applicable

(4) Operational availability - Not applicable

(5) Same or related items -

Agency	Project Number	Project Title
Chemical Corps	4-99-02-002-02	Antipersonnel Effectiveness of Incendiary Agents & Weapons (U)
" "	4-99-02-002-03	Wound Ballistics of Missiles & Blast (U)
Navy	NM 64 00 00	Protection From Blast (Other Than Atomic)
"	NM 81 00 00	Protective and Armored Garments and Studies of Related Mechanisms of Wounding

(6) Specific review points - Not applicable

e. Background History and Progress: (1) Background History: This joint program on the design of body armor, including helmets, is of interest to the various technical services. Advice on the medical ramifications is furnished on a consultative basis when requested by interested agencies.

(2) Progress: A medicinal spray topically applied to wound-shocked animals with marked (4 to 5x) of survival time has been developed. Use of this spray will be applied in further wound studies.

Methods for predicting desirable mechanical characteristics for improving the textile component in body armor have also been developed. This should lead to body armor with increased ballistic quality.

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f. Future Plans: Research studies will be continued on the medical aspects of wounding and of lethal missiles in order to provide methods of protection and treatment.

g. References: See Chemical Corps Project Reports.

h. Modernization code: Not applicable