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...B PROJECT CARD	TYPE OF REPORT: Progress	REPORTS CONTROL SYMBOL: DD-RDB(A)48
...OJECT TITLE: ...hysiological Basis for Treatment ...nd Rehabilitation	2. SECURITY: U / 4. INDEX NUMBER: - - - -	3. PROJECT NUMBER: NR 115-000 / 5. REPORT DATE: 1 Jan 53
6. BASIC FIELD OR SUBJECT: Biological Sciences	7. SUB FIELD OR SUBJECT: Physiology	7a. TECHNICAL OBJECTIVE: PO-16402
8. COGNIZANT AGENCY: Office of Naval Research; 9. DIRECTING AGENCY: Research Group, Physiology Branch, Code 441	12. CONTRACTOR AND/OR LABORATORY: See para. 21c	CONTRACT/W.O. NUMBER
10. REQUESTING AGENCY: Office of Naval Research	13. RELATED PROJECTS: None	17. EST. COMPL. DATES: RES. Continuing; DEV. -; TEST -; OP. EVAL. -
11. PARTICIPATION AND/OR COORDINATION: See para. 21d	14. DATE APPROVED: 15 March 1950	FY / 18. FISCAL ESTIMATES: 53 151 M; 54 150 M
	15. PRIORITY: 2C / 16. MAJOR CATEGORY: - - - -	

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19. Supersedes Project Card NR 115-000 of 1 January 1952

20. REQUIREMENT AND/OR JUSTIFICATION

There are numerous problems in clinical treatment procedures which arise frequently if not exclusively in military operations. Better understanding of the basic physiological processes involved will make it possible to devise simpler and more effective procedures for the management of these special conditions, thus increasing operational efficiency and hastening rehabilitation.

21. BRIEF OF PROJECT AND OBJECTIVE

a. BRIEF: This project includes basic and applied research on certain critical problems of military medicine with the objective of utilizing new concepts and knowledge thus gained in the development of techniques for facilitating treatment and recovery

b. APPROACH: In the approach to the above problems work is being carried out in the following areas:

(1) The control of the coagulation of blood.
(2) The improvement of vascular surgical techniques.
(3) More effective treatment procedures for anemia.
(4) The physiology of nerve regeneration.
(5) Principles of wound healing.

V2

5 22. RDB SUMMARY SH. NR 3218 CR | IC & P. 49 | X. | I. | C.

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COPIED: 10/25/94
RECORD GROUP: #330
ENTRY: #346A
FILE: (in box #158)

21. (continued)

c. [illegible]:

NR 115-050 A Study of Amino Acid Utilization Following Injury (Unclassified)

Completed per status report 11/30/53

Contractor: Bowman Gray Medical School, Winston Salem, N.C.
Annual Rate: $4,000
Contract: Nonr 50100 (7-1-51 to 6-30-53)
Investigator: R.L. Burt

Problem: In this study the response to amino acid injected after trauma (controlled laparotomy), will be tested employing a microbiological assay procedure to determine individual amino acid concentrations. Further studies are planned which concern the general problem of amino acid matabolism during stress.

NR 115-059 Transplantation of Organs (Unclassified)

Contractor: Hahnemann Hospital, Philadelphia, Penna.
Annual Rate: $2,600
Contract: Nonr 33400 (4-1-51 to 3-31-52)
Investigator: C.P. Bailey

Problem: To work towards perfection of techniques for the transplantation of organs (beginning with the lung) in dogs.

NR 115-070 Relationship of Function and Morphology of Blood Vessels; Acute Necrotizing Arteriolitis (Unclassified)

Contractor: Yale University, New Haven, Conn.
Annual Rate: $20,000
Contract: N6ori 04412 (6-1-46 to 6-30-54)
Investigator: L.L. Waters

Problem: The objective of this task is to investigate the etiology and pathogenesis of the acute arteriolar lesions that occur in chronic renal diseases and in sensitivity states, including rheumatic fever. An additional objective is to study the relationship of these changes to arteriosclerosis.

NR 115-096 Effect of X-Radiation on Electrolyte and Water Metabolism (Unclassified)

Contractor: Syracuse University, Syracuse, N.Y.
Annual Rate: $9,800
Contract: Nonr 669(02) (8-1-52 to 7-31-53)
Investigator: W.R. Boss

(continued)

Problem: Previous work has shown that X-radiation induces abnormalities both in internal distribution of body fluid (e.g. edema, alterations in plasma volume) and in the appetite for and excretion of water and electrolyte. This project will attempt to analyze these effects in terms of possible causal changes in one or more of several factors known to be concerned normally with the regulation of salt and water metabolism.

NR 115-104 Shock Associated with Toxic Proteins (Unclassified)
Completed per status report 11/30/53

Contractor: Indiana University, Indianapolis, Ind.
Annual Rate: $4,000
Contract: N6ori 18C01 12-1-46 to 5-31-53)
Investigator: L.E. Bowman

Problem: The purpose of this task is: (1) The investigation of the mechanism of shock associated with toxic proteins, particularly as related to enzyme systems, such as trypsin or the trypsin-like protease of plasma; (2) A study of the relation of the same enzyme to the process of blood coagulation and its deceleration or acceleration through the experimental use of enzyme inhibitors or enzymes modified to eliminate their shock effect.

NR 115-110 Hormones, Metabolism, and Stress (Unclassified)

Contractor: Worcester Foundation for Experimental Biology, Shrewsbury, Mass.
Annual Rate: $15,500
Contract: N6ori 19702 (10-1-46 to 9-30-55)
Investigator: H. Hoagland

Problem: This task is concerned with stress and metabolism studies particularly in relation to the action of hormones from the adrenal cortex. The work has fallen into two main categories: (1) studies of human adrenal responses to experimental stress given to normal subjects and to those suffering from severe personality disorder and (2) studies of protein and electrolyte metabolism in animals in relation to adrenal function.

NR 115-124 The Hypophysis and Iron Metabolism (Unclassified)

Contractor: University of Cincinnati, Cincinnati, Ohio
Annual Rate: $7,000 (ONR), $4,400 (others)
Contract: N7onr 47904 (7-15-46 to 8-30-53)
Investigator: R.C. Crafts

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21c (continued)

Problem: Hypophysectomy in a rat induces an anemia with a decreased erythrocyte count, a decrease in hematocrit, hemoglobin, and mean corpuscular volume, and a decrease in mean corpuscular hemoglobin. A hypoplasia of the bone marrow with a decrease in percentage of erythroid elements also results. Thyroxine controls all conditions except for the decrease in hemoglobin. It is the purpose of this task, therefore, to study iron metabolism following removal of the hypophysis.

NR 115-127 Experimental Concussion (Unclassified)

Contractor: University of Washington, Seattle, Wash.
Annual Rate: $5,000
Contract: Nonr 94200 (8-1-52 to 7-31-53)
Investigator: A.A. Ward

Problem: The aim is to elucidate some of the basic mechanisms involved in concussion as produced in monkeys by a pneumatic hammer. The first aspect will be concerned with the physical hydrodynamic changes which occur within the closed calvarium at the moment of the blow. The second aspect of the problem will involve an analysis of the physiological changes which occur as a result of these forces.

NR 115-171 Chemical and Physiological Study of the Growth Hormone of the Anterior Pituitary (Unclassified)

Contractor: Tufts College, Medford, Mass.
Annual Rate: $10,000
Contract: Nonr 78900 (5-1-52 to 7-30-53)
Investigator: E.B. Astwood

Problem: In the purification of corticotropin, one of the fractions removed contains abundant amounts of the growth hormone. Thus, this task will fractionate this growth hormone-containing extract by well known procedures including chromatography. Concurrently, a variety of metabolic effects induced in normal and hypophysectomized animals by the growth hormone, with the aim of defining more clearly the role of the hormone in normal physiology and also to develop a more rapid and reliable assay method for the substance.

NR 115-177 Blood Cell Counter (Unclassified)

Completed per status report 11/30/53

Contractor: Coulter Electronics, Chicago, Ill.
Annual Rate: $23,000
Contract: Nonr 105400 (8-1-52 to 4-30-53)
Investigator: Wallace H. Coulter

(continued)

Problem: To supply a laboratory model of an instrument to illustrate the applicability of a new principle for detecting and counting small particles by a method substantially independent of particle size or composition. The application of this technique holds the promise of ultimately providing, in a small, compact instrument, means for making red blood counts in the field in a manner which would overcome the serious limitations and increase the accuracy of the present method. The contractor will supply the Navy Department with one laboratory type model of this instrument for further evaluation and testing.

NR 115-213 Study of Biological Activity of Corticosteroid Perfusion Products (Unclassified)

Contractor: Worcester Foundation for Experimental Biology, Shrewsbury, Mass.
Annual Rate: $14,000
Contract: Nonr 69701 (12-15-51 to 12-14-52)
Investigator: J. Pincus

Problem: This research will investigate the biological activity of various corticosteroids produced by the perfusion of the isolated adrenal gland and of corticosteroid transformation products produced by perfusion of corticosteroids through metabolizing tissues.

NR 115-231 Applications of Ergography to the Neurophysiological Study of Motor Learning (Unclassified)

Contractor: University of Illinois, Chicago, Ill.
Annual Rate: Equipment Loan
Contract: Nonr 75000 (1-1-52 to 12-31-54)
Investigator: F.A. Hellebrandt

Problem: This is a three-year loan of equipment designed by Dr. Hellebrandt under ONR contract at the Medical College of Virginia. Equipment has been transferred to University of Illinois, where Dr. Hellebrandt is now located.

NR 115-245 Mass Cultivation of Human Connective Tissue and Epithelium (Unclassified)

Contractor: Jefferson Medical College of Philadelphia, Philadelphia, Penna.
Annual Rate: $9,000
Contract: Nonr 13300 (6-1-47 to 6-30-53)
Investigator: J. Vogelaar